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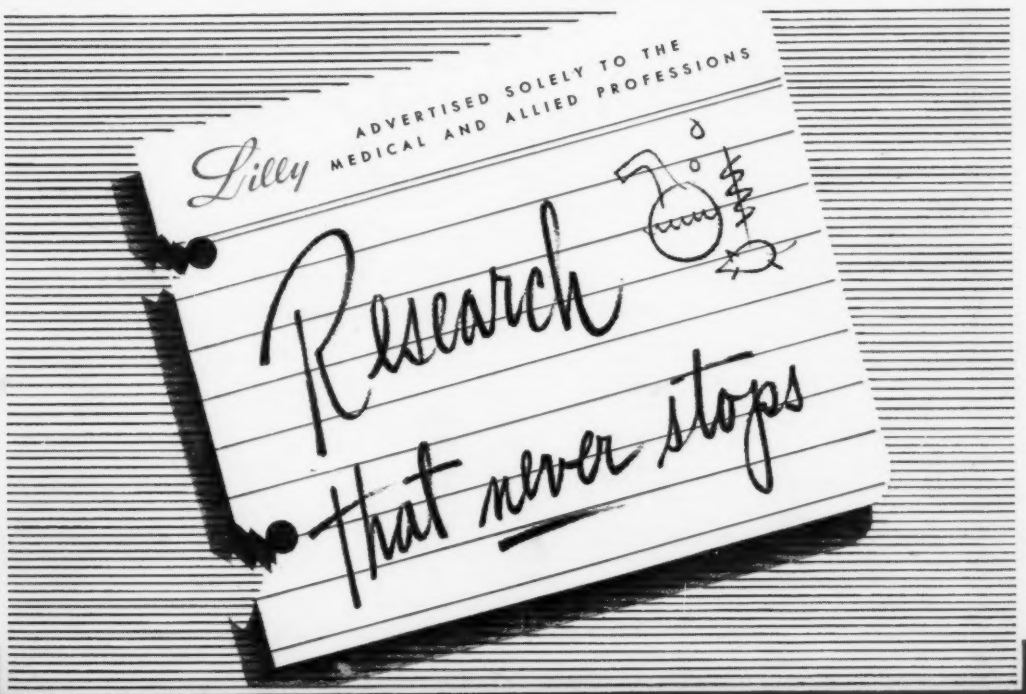


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## MATERNAL MORTALITY AT SHREVEPORT CHARITY HOSPITAL*


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W. C. ELLIS, M. D.
F. A. SEWELL, M. D.

SHREVEPORT


The present report represents an analysis of the charts of pregnant women who died in Charity Hospital between 1941 and 1951, inclusive. All deaths associated with abortion, ectopic pregnancy, medical and surgical disease, as well as all pregnancies admitted to the obstetric floor for delivery or observation, are included. The object of the present autobiographical report is to analyze our results and to subject our failures to self-criticism.

For the benefit of those not familiar with the set-up of our service it is appropriate that the organization of the department over the period under study be briefly reviewed. Prior to 1943, we had no full time residents. From 1943 to 1947, one resident in obstetrics managed the service with the aid of two internes and one visiting man. Since 1947, we have had a staff of four to six visiting men, all either board certified or sufficiently trained to meet board requirements. After the war we recruited a staff of from three to four house residents and two internes, the latter rotating through the service for a two month period.

The service has grown to the point of being the eighteenth largest obstetrical unit in the country. Considering its size of over 4000 deliveries and 5000 admissions last year, it has been at least from a quantitative standpoint one of the most undermanned large obstetric service in the country. Even yet we do not have full approval of our service for postgraduate training by the Council on Medical Education of the American Medical Association, and this is handicapping us in recruiting an adequate resident staff. We have delivered from 2281 to 4176 babies per year from 45 beds assigned to the department. We will move into a more adequate physical facility, the new Confederate Memorial Medical Center, by 1953.

In the period covered by this report there were 28,915 admissions, 27,746 live births, and 63 deaths from all causes, with 56 deaths directly attributable to obstetrical causes.

For the purpose of comparing our changing death rates and distribution of causes of deaths over the period of years we have divided the study into two periods. Period I was from 1941 to 1945, inclusive, and period II was from 1946 to 1951, inclusive, (Table 1). In period I there were 9,164 live births and 36 deaths, yielding a death rate of 39 per 10,000 live births. In period II, there were 18,600 live births and 27 deaths, giving a death rate of 14 per 10,000 live births. When these deaths are corrected to exclude abortions, ectopic pregnancies under five months' gestation, and a miscellaneous group of medical diseases, including 2 burns, 1 sickle cell anemia crisis, 1 adenocarcinoma of the colon, 1 nephrosclerosis, 2 myelogeneous leukemias, and 1 case of typhoid fever, the corrected mortality was 28 per 10,000 live births in period

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.


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TABLE 1
MORTALITY RATE—GROSS AND CORRECTED FOR PERIODS I AND II

| | Total Live Births | Total Deaths Gross | Rate/ 10,000 Live Births | Total Deaths Corrected | Rate/ 10,000 Live Births |
|---|---|---|---|---|---|
| Period I (1941-1945) | 9,164 | 36 | 39 | 26 | 28 |
| Period II (1946-1951) | 18,600 | 27 | 14 | 21 | 11 |

I and 11 per 10,000 live births in period II.

We consider that these rates should not be compared with those reported by other obstetric services whose reported period of study ended from three to five years ago. Maternal death rates are declining so rapidly from year to year everywhere that such a comparison would be fallacious.

The maternal death rate for the city of Shreveport, from 1945 to 1950, was 11.5 per 10,000 live births. It becomes apparent that our death rate parallels that of the community in which the hospital is located. As will be shown later the great improvement in the death rate in the second period is due in a large measure to the effectiveness of antibiotics in controlling infection. However, this is not the only factor. A larger resident and visiting staff with closer supervision and better standardizations of methods of meeting complications has caused a gratifying, though not yet satisfying, decrease in deaths from all causes. Table 2 shows the change in distribution of causes of deaths in the two periods. Septic deaths following delivery accounted for 13 or 36 per cent of the deaths in period I, and 3 or 7.4 per cent of the deaths in period II. Postabortal sepsis accounted for 16.6 per cent of the deaths in period I and there were none in period II.

In spite of the free use of transfusions, hemorrhage has moved to first place as a cause of death in the second period accounting for 37 per cent of all deaths as compared to 19 per cent in the first period. This does not represent an absolute increase in death rate from hemorrhage but a relative increase in its place of seriousness as a lethal factor.

The over-all picture is one of increasing relative importance of hemorrhage and coincidental medical complications as a cause of death along with a nearly stationary position of the toxemias as a lethal factor. There was a sharp drop in the frequency of septic death in period II.

### SEPTIC DEATHS

Septic deaths included 5 postpartal, 6 postabortal infections and 2 cases of peritonitis following accidents of delivery accounting for 13 or 36 per cent of all deaths in period I. In period II, there were 3 septic deaths, 1 from pyelonephritis and 2 following ruptured uterus, accounting for 11 per cent of the deaths. Among the 39,915 total admissions for the entire period studied, 16 or 25.4 per cent of the deaths resulted from sepsis of all types. Seven or 44 per cent of these deaths occurred among 4,185 admissions in 1941 and 1942, before we had free use of antibiotics.

The septic deaths in the second period decreased at the rate of 89 per cent over period I. In the last 21,328 admissions (since 1944) we would have had only 1 strictly puerperal septic death had a sponge not been accidentally left in a patient's abdomen following hysterectomy for ruptured uterus.

### TOXEMIA OF PREGNANCY AS A CAUSE OF DEATH

Table 2 shows that 17 of the 63 deaths in this series were caused by toxemia of pregnancy. If the 6 cases of fatal abruptio placenta are added to this list, then 23 or 34.9 per cent of our deaths can be attributed to this disease. Only 19.8 per cent of our patients have been registered in our prenatal clinics. Practically none of the others received adequate prenatal care and most received none at all.

We have not gathered accurate data on the incidence of toxemia for our service for the entire period, but in the annual report for the past two years, 19 and 18.2 per cent of the admissions to the delivery floor have been classified as toxic. We maintain a 13 bed ward exclusively for observation and treatment of these patients.

TABLE 2
DISTRIBUTION OF CAUSES OF DEATH

| | Period I (1941-1945) Live Births 9164 | | Period II (1946-1951) Live Births 18,600 | |
|---|---|---|---|---|
| | | % | | % |
| Sepsis, postpartal | 5 | 13.9 | 0 | 00.0 |
| Sepsis, postabortal | 6 | 16.6 | 0 | 00.0 |
| Sepsis, extragenital | 0 | 00.0 | 1 | 3.7 |
| Hemorrhage, all causes* | 7 | 19.4 | 10 | 37.0 |
| Toxemia, all types | 10 | 27.8 | 7 | 25.9 |
| Embolic phenomenon | 1 | 2.8 | 0 | 00.0 |
| Accidents of pregnancy† | | | | |
| With hemorrhage | 2 | 5.5 | 1 | 3.7 |
| With sepsis | 2 | 5.5 | 2 | 7.4 |
| Miscellaneous‡ | 3 | 8.3 | 6 | 22.2 |
| Total | 36 | | 27 | |
| Rate per 10,000 Live Births | 39 | | 14 | |

*Ectopic pregnancy, abortion with hemorrhage, postpartum without lacerations, placenta previa and abruptio placenta.

†Laceration of cervix, uterine rupture (traumatic and spontaneous).

‡Miscellaneous—Sickle cell anemia, typhoid fever, burns, myelogenous leukemia, nephrosclerosis, adenocarcinoma of colon with metastasis.

Eleven of the 17 deaths assigned to toxemia of pregnancy were convulsive, the remainder were not and these died from pulmonary edema, cerebral hemorrhage, or pneumonia. All of the nonconvulsive deaths except 1 occurred in the first period before 1944 when part of our treatment consisted of giving up to 3,000 cc. or more of hypertonic glucose a day in a futile attempt to effect hydremia and diuresis. In the second period we have limited fluid intake to approximately urinary volume plus 1,500 cc. and insist on frequent checking of the chest for pulmonary edema. If rales appear, intravenous fluids are stopped or reduced to 50 cc. of 50 per cent glucose in divided doses. Preclamptic and eclamptic patients do not die from the results of oliguria. Hydremia and a good diuresis presage recovery from pure toxemia of pregnancy, but we are convinced that attempts to produce it with indiscriminate administration of fluids will kill the patient with severe toxemia even if the disease does not. Oversedation, especially with barbiturates, predisposes to circulatory failure and pulmonary edema. Better dosage individualization of these drugs has helped improve our results with these patients in recent years. We are preventing recurrent admissions of repeat toxemias to the service by liberal use of postpartum sterilization in multigravida with essential hypertension and recurrent toxemia. Our rate of decrease in mortality from toxemia in the second period was 72 per cent in relation to period I. The striking decrease in rate from the nonconvulsive type of toxemia in the second period leads us to fear that our former methods of oversedation and hydration resulted in more deaths than might have occurred had the disease been allowed to go untreated except for sedation and judicious timing of termination of pregnancy.

### EMBOLIC PHENOMENA

This death occurred from amniotic fluid embolism proved by autopsy. This was thought to contribute to at least another death in this series among the postpartum hemorrhage group.

### ACCIDENTS OF PREGNANCY

Among the 4 patients dying from rupture of the uterus in period I, 3 were traumatic. All were ruptured before admission to the hospital and all were subjected to hysterectomy. The fourth represented rupture of an old uterine scar before admission to the hospital. The 3 ruptured uteri that occurred in the second period were made up of 1 spontaneous rupture before admission from a shoulder presentation, 1 spontaneous rupture of the lower uterine segment during labor in the patient who had a previous trachelectomy and 1 traumatic rupture of the uterus that occurred during attempted version for transverse lie.

Only 1 death was given consideration as being caused by heart disease. This patient died from pulmonary edema following a secondary section and the death was assigned to toxemia of pregnancy.

### HEMORRHAGE AS A CAUSE OF DEATH

Table 3 shows that there were 9 hemorrhagic deaths in 9,164 live births in period I, and 13 deaths from hemorrhage among 18,600 live births in period II, a rate of

0.98 and 0.69 per 1,000 live births in the two periods respectively. This represents an actual 39 per cent rate of decrease in mortality from hemorrhage in the second period.

TABLE 3
HEMORRHAGE AS A CAUSE OF MATERNAL DEATHS

| | Period I (1941-1945) | Period II (1946-1951) |
|---|---|---|
| Abruptio placenta | 2 | 4 |
| Ruptured uterus | 2 | 2 |
| Postpartal bleeding | 3 | 2 |
| Ectopic pregnancies | 2 | 1 |
| Placenta previa | 0 | 1 |
| Abortion with hemorrhage | 0 | 3 |
| Total Deaths | 9 | 13 |
| Rate per 1000 Live Births | 0.98 | 0.69 |

The freer use of blood to counteract shock during the second period contrasted sharply with patients that died from shock in period I. The 9 patients dying from hemorrhage in period I received from none to 3,150 cc. of blood. The 13 patients dying from hemorrhage in the second period received from none, in a patient admitted already spontaneously recovered from shock who died from renal sequela, to 8,500 cc. given to a patient with irretrievable placenta, who developed her first hemorrhage after admission to the hospital in 1949. The average volume of blood and plasma given those dying from hemorrhage in period I was 1,520 cc., and in period II, the average amount of blood given per patient lost, was 4,370 cc. Massive and rapid transfusions will not compensate for bleeding that has been allowed to persist too long before definitive measures to stop it are taken, nor will it save patients who sink so deeply in shock that subsequent death ensues from tissue damage following shock. Four such remote causes of death from hemorrhage have occurred since 1947.

We find, therefore, that the sequela of shock producing disease and not the primary shock is our present *bête noir* of hemorrhage. We have had 2 hemorrhagic fatalities from ruptured uterus in each period. The 2 in period I were a spontaneous rupture outside the hospital and a traumatic rupture inside. The 2 fatal ruptures in the second period followed version for a neglected shoulder presentation, and a spontaneous laceration of the previously amputated cervix during labor, both occurring in the hospital.

Of the patients who died from postpartal bleeding, at least 1 was thought to be the result of amniotic fluid embolism but was not proven by autopsy. The 2 ectopic pregnancies in period I were tubal pregnancies, and the one in period II was a full term abdominal pregnancy with a living baby. The loss of only 1 patient in this entire series from bleeding resulting from placenta previa speaks well for our method of management of this disease. Of the 3 patients who were lost from postabortal hemorrhages, 2 were criminal abortions, admitted with rupture of the uterus in 1947, and the third was admitted to the hospital in shock, following attempted curettement in another hospital.

### CESAREAN SECTIONS RELATED TO DEATH

We have done 441 cesarean sections in the entire eleven year period, giving a rate of 1.5 per cent. Table 4 shows the prevailing section rate in several hospitals as reported by Kistner[1], in comparison with our own. There are several reasons for our low section incidence. The greatest reason is that most of our patients are admitted in labor as total strangers to us and we have no previous knowledge of their pelvis. A test of labor is almost a routine procedure.

Table 5 shows the distribution of indications for the 441 sections. Cephalopelvic dystocia was our leading indication. Many patients with previous sections are admitted in advanced labor and if they are progressing with favorable signs, we cross-match them and sweat them through. Thus, only 14.7 per cent of our sections were of the repeat type.

Placenta previa cases are sectioned if the condition of the cervix and the degree of previa makes them unfavorable for vaginal delivery by simple membrane puncture or pulling down a foot. Nineteen per cent of our sections were for this cause. It is our policy to deliver patients with premature

TABLE 4
CESAREAN SECTION RATES

| | |
|---|---|
| New Haven Hospital | 5.9% |
| Margaret Hague | 2.6 |
| Chicago Lying-In | 5.5 |
| New York Hospital | 2.1 |
| Boston City Hospital | 4.2 |
| Kansas City | 7.1 |
| Johns Hopkins Hospital | 5.5 |
| Cleveland Maternity | 6.1 |
| Philadelphia Lying-In | 5.8 |
| Sloane Hospital | 5.8 |
| Average 4.9% | |
| Cincinnati—Private Hospitals | 1.8% |
| Shreveport Charity Hospital (1941-1951) | 1.5 |
| Cincinnati General Hospital (1940-1949) | 1.0 |

Kistner, Robt. W.: Am. J. Obst. & Gynec. 61:109, 1951.

separation of the placenta by the abdominal route if the degree of hemorrhage seems serious or the condition of the cervix is such that early and rapid termination of pregnancy cannot be expected from simple rupture of the membranes.

We have become less rigid in our requirements for justifying sections on the basis of uterine inertia than formerly. We are not inclined to wait hopefully beyond twenty-four hours for progress of labor that does not come from a few hours of sedation or small repeated doses of pitocin stimulation. The patients sectioned for inertia had normal pelves.

Considering the almost universal dogma of "never section a patient for eclamspia," the 11 patients we did section for this disease demands explanation. Operations were undertaken as an expedient method to terminate pregnancy after the eclampsia was controlled, and medical induction had failed, usually in the face of an unripe cervix. Two were sectioned because of rapid fulmination of the disease. By this we mean that within six to twenty-four hours after admission the patient presented at least three of Eden's criteria of "severe eclampsia" in spite of conservative treatment and were not in labor. One was sectioned forty and one fifty-two hours after admission because the situation looked increasingly hopeless under conservative measures. These women were all operated on under local anesthesia. They all survived though they were all of the severest type.

The 49 sections listed under toxemia in table 5 were all done to terminate pregnancy when this was deemed advisable for women with essential hypertension and/or preeclampsia in association with an unripe cervix. The 4 cases sectioned for marginal sinus rupture were not diagnosed preoperatively and the diagnosis was made by examination of the placenta post partum. The preoperative diagnosis was placenta previa with "unripe" cervix in all of them. Parenthetically the cervix is usually not "unripe" in the face of placenta previa.

TABLE 5
INDICATIONS FOR CESAREAN SECTION

| | Number | Percent |
|---|---|---|
| Cephalopelvic disproportion | 128 | 29.0 |
| Inertia labor | 25 | 5.6 |
| Placenta previa | 85 | 19.3 |
| Eclampsia | 11 | 2.5 |
| Previous section | 65 | 14.7 |
| Abruptio placenta | 29 | 6.5 |
| Toxemia | 49 | 11.1 |
| Ruptured uterus | 6 | 1.3 |
| Prolapsed cord | 6 | 1.3 |
| Malpresentation | 25 | 5.6 |
| Vaginal tumors | 6 | 1.3 |
| Breast tumor | 1 | 0.2 |
| Tuberculosis, bilateral | 1 | 0.2 |
| Marginal sinus rupture | 4 | 0.9 |
| Total | 441 | |

There were 13 deaths following cesarean section, 6 followed ruptured uteri, 5 of which were ruptured on admission. One was a postmortem section, 2 were for placenta previa, 1 of which died from sepsis and was listed as postpartum sepsis. There was 1 death each, following section for inertia, contracted pelvis, toxemia, and failed version for transverse lie without rupture of the uterus. One fatality followed secondary section from pulmonary edema. She was assigned to toxemia of pregnancy.

Our mortality for cesarean section was 7.47 per cent in period I, and 1.19 per cent in period II. This is not good. However, each patient that died had a serious associated complication. There have been no deaths in this period from elective cesarean

section in uncomplicated patients. At the end of December 1951, we had accomplished 286 consecutive cesarean sections without a death.

PREVENTABILITY
(1947-1951)

It is beyond the limits of this paper to accurately analyze the errors that contributed to all 63 of the deaths covered by this report. All charts previous to 1947 were on microfilm and difficult to read. We have, therefore, confined ourselves to perusing only the intact charts that were available. We had in all 23 such charts for study. They dated from January 1947. Of these 23 deaths, pregnancy was considered a coincidental and relatively noncontributory factor in 5. The remaining deaths were made up of 2 cases of postpartum hemorrhage, 4 cases of abruption of the placenta, 6 eclamptic toxemias, and 1 each of cesarean section, ruptured uterus, abortion, acute pyelonephritis, placenta previa, and abdominal pregnancy.

Detectable errors that contributed to 8 deaths among the 18 patients whom we lost in the past five years included the following: Unwise decision for vaginal delivery in 1 case of abruptio placenta, oversedation and hydration of an eclamptic, too immediate postpartal sterilization in 1 eclamptic, 2 failures to employ prophylactic postpartum sedation in severe pre-eclampsia; failure to establish preoperative diagnosis on a transverse lie with rupture of the uterus, 1 case; failure to establish properative diagnosis of abdominal pregnancy, 1 case; poor judgment in administering blood to a severe preclamptic toxemia, 1 case.

SUMMARY

Sixty-three deaths occurring on the obstetrical service at Shreveport Charity Hospital in the past eleven years have been reviewed. Death rates from all causes have been presented in two comparative periods. Hemorrhage and toxemia of pregnancy have accounted for over half of our deaths in the most recent period. Medical complications of pregnancy have become the third most important contributory factor in our obstetrical deaths.

In the second period of this analysis there has been a rate of decrease of:

64 per cent in over-all mortality,

57 per cent in corrected mortality,

100 per cent in mortality from postabortal sepsis,

34 per cent decrease in mortality from hemorrhage,

89 per cent decrease in mortality from sepsis,

63 per cent decrease in mortality from toxemia, and

67 per cent decrease in mortality from accidents of pregnancy.

Among the cesarean sections there were:

A section rate of 1.11 per cent in period I,

A section rate of 1.87 per cent in period II,

An increased rate of 63.9 per cent,

A mortality of 7.47 per cent in Period I,

A mortality of 1.19 per cent in Period II,

A decrease of 84.07 per cent in mortality in period II.

REFERENCE

1. Kistner, Robert W.: An analysis of ten years of cesarean section at the Cincinnati General Hospital. Am. J. Obst. & Gynec., 61:109, 1951.

—o—

## AMNIOTIC FLUID EMBOLISM

### A REPORT OF THREE CASES*

ISADORE DYER, B. S., M. D.
NEW ORLEANS
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BATON ROUGE
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NEW ORLEANS

Embolism is an important cause of death in obstetrics and gynecology. Next to toxemia, hemorrhage, and infection, embolism is the most frequent cause of maternal fatality.[1] Of the several types of emboli found in the maternal circulation, and more particularly, the arteries and arterioles of the lung, amniotic embolism has become sin-

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

From the Department of Obstetrics and Gynecology, Tulane University School of Medicine, New Orleans, and the Obstetric Service of Charity Hospital of Louisiana at New Orleans.

This study was aided by a grant from the Eli Lilly Company.

gularly important as a cause of maternal demise during labor or the immediate puerperium.

Amniotic embolism as first described by Steiner and Lushbaugh,[2] in 1941, is the entrance of fetal amniotic fluid and its contents, namely, meconium, squamae, mucin, lanugo hairs, and debris, into the maternal circulation by way of the veins and venules of the myometrium, eventually finding its way into the arteries and arterioles of the lung by way of the right heart.

Prior to 1941, there was no mention made of this entity. However, the original investigators[2] in their initial work in reporting the first eight cases, showed that amniotic fluid embolism does exist and in their opinion is a common cause of maternal death and accounts for some of the heretofore unexplained etiology of fatal obstetrical shock. Since the appearance of this complete investigation numerous pathologists and clinicians have added to the literature and as far as we know there are 28 proven cases reported.[2-12] It is our understanding that Hertig has 4 more cases in press,[13] bringing the total to 32. This would imply that amniotic fluid embolism is less frequent than first postulated. It is our purpose in this article to add 3 more proven cases to the literature.

CLINICAL COURSE—DIAGNOSIS—PATHOLOGY

The outstanding feature of these cases and of all amniotic fluid embolism deaths is overwhelming shock occurring during labor or immediately after delivery. This is evidenced by a sudden drop in blood pressure and a cessation of radial pulse. The patient has usually been in hard or sudden labor and quickly will show signs of pain, restlessness, anxiety, and a feeling of impending disaster. Cyanosis and dyspnea are usually evident and death may follow immediately. A tendency for profuse hemorrhage postpartum has been noted in several cases that have died from amniotic fluid embolism.

The diagnosis of a nonfatal embolism or amniotic fluid is a difficult if not impossible diagnosis to make. This possibility has been reported.[14] Sudden unexplained shock, cyanosis, dyspnea, followed by a hemorrhagic tendency with afibrinogenemia can be explained on the basis of amniotic fluid in the maternal circulation. However, all substantiated cases have been diagnosed at autopsy or by the method of Gross and Benz.[5] This method is of particular use when autopsy has been refused. Blood is drawn from the right heart or vena cava post mortem, and centrifuged. Instead of the buffy layer and clear layer above the cells, there are three layers. The middle layer can be fixed in block and sections will show the presence of amniotic contents.

Generally all cases that have been reported show either gross or microscopic evidence of amniotic emboli in the uterus, ovaries and more particularly the lungs. Mallory[9] in his report of 3 cases made the statement that gross pathological changes are difficult if not impossible to detect. We know that gross pathological evidence may be demonstrated in the lungs. In our second case, diagnosis was made grossly at the autopsy table. The cut surface of the lung showed numerous areas of amniotic and meconium emboli. Droplets of glistening yellow material could be expressed from the arterioles on the cut surface. A smear of this material clearly shows lanugo hair and debris. (Fig. 1).

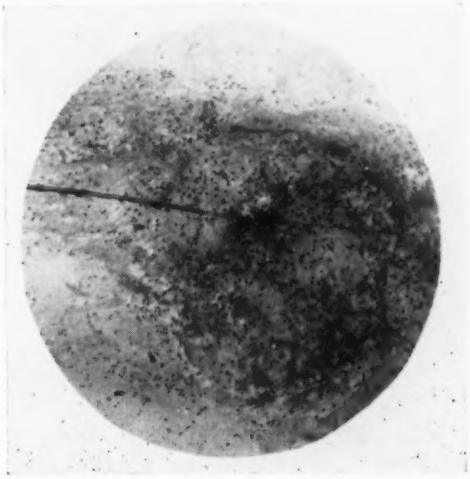

Figure 1.

Microscopically, we find emboli in the veins and venules of the myometrium, ova-

ries, and in the arterioles and arteries of the lungs. If the embolism has not been massive, the emboli can usually be found near the periphery of the lung. These emboli consist of keratinized squamous cells with their compressed wavy cytoplasm and dark squeezed-in nucleus, the "wavy squamae", granular acidophilic substance, mucin and lanugo hairs. There is a marked leucocytic reaction, frequently compressing the amniotic fluid contents. Areas of atelectasis and emphysema are both seen, as is pulmonary edema. Other organs examined show findings of anoxia. Rarely if ever are the contents of amniotic fluid found in other than the organs mentioned above.

ETIOLOGY

The pathogenesis of this phenomenon is not constant, however, several factors must be present. We must have trapped fluid, a mode of entrance into the maternal circulation and pressure. Hertig and O'Leary[15] feel that fluid becomes trapped between the amnion and chorion, or in a marginal clot, or in a decidual sinusoid. This explains the escape of fluid into the maternal circulation. Landing[19] postulated that fluid enters only by sinusoids being opened abnormally as in cesarean section, placenta accreta, rupture of the uterus, and premature marginal separation of the placenta. As previously stated nearly all cases exhibit hard or sudden labor which affords the pressure necessary to force the fluid and its contents into the open sinusoids that lead to the normal maternal circulation.

When the microscopic finding of emboli is not extensive enough to cause death by the usual mechanism of obstruction by emboli, the overwhelming shock in such cases has been attributed to many clinical entities. Of these, rupture of the uterus, hemorrhage, abruptio placenta, acute cardiac failure, eclampsia, and anesthetic accidents have often been thought responsible only to be later proven only partially responsible or completely nonexistent. Steiner and Lushbaugh[2] explained the occurrence of shock in this type of case as an anaphylactoid reaction to the contents of amniotic fluid. They injected amniotic fluid and meconium into experimental animals and obtained a like picture. Filtered amniotic fluid does not cause this severe reaction.

The hemorrhagic tendency of patients that deliver and do not expire immediately is accounted for by the coagulant activity of amniotic fluid.[17] When it enters the maternal circulation amniotic fluid immobilizes the great quantities of fibrinogen and results in an afibrinogenemia. This results in delayed hemorrhage occurring minutes or an hour later if death does not occur from the initial shock.

MATERIALS

It had been our view that death from amniotic fluid embolism is rare. May[18] reviewed the slides from 81 autopsies done on maternal deaths at Charity Hospital of Louisiana at New Orleans, from 1939-1949, and was unable to find a single case. However since 1950, the residents and pathologists have been urged to look carefully for this entity and this has resulted in the positive diagnosis of 3 cases in 22,393 deliveries with 27 maternal deaths or an incidence of 1 per 7,464 deliveries (Fig. 2).

CHARITY HOSPITAL, NEW ORLEANS.

| TOTAL DELIVERIES | MATERNAL DEATHS PER 1000 * | AMNIOTIC FLUID EMBOLUS % OF TOTAL DEATHS |
|---|---|---|
| 1942-1949 56,945 | 1.9 | 0 |
| 1950-1951 22,393 | 1.21 | 11.1 % |

* UNCORRECTED

Figure 2.

This compares with Steiner and Lushbaugh's[2] figures from cases examined from Chicago-Lying-In (i.e. 1 in 8,000).

DETAILED CASE REPORTS

*Case No. 1.* A 33 year old white female, para IV, gravida V, was admitted to Louisiana State University Obstetric Service at Charity Hospital on September 18, 1950, in mild labor, pains every twenty minutes and the membranes were intact. The pelvis was considered adequate. She was Rh negative. At midnight the bag of waters was ruptured artificially because labor had ceased. She was placed in a delivery room and at 12:45 A. M. delivered a 7 lb. 14 oz. boy from O. P. The amniotic fluid was yellow tinged. The placenta deliv-

ered spontaneously twenty-five minutes later and blood loss was estimated at 600 cc. The patient's blood pressure dropped to 80/60 at 1:25 A. M., and she was given 500 cc. of Rh negative blood. The pressure continued to drop to 50/30. Ergotrate gr. 1/320 was given intravenously. The patient became very wild and it took 3 people to hold her down. A ruptured uterus was suspected and an additional 1000 cc. of Rh negative blood was stripped into the vein. This was followed with 1000 cc. Rh positive blood. The patient was pronounced dead at 2:25 A. M. No clinical diagnosis was established. It was a picture of overwhelming shock and a "wild patient."

At autopsy, #A50-922, performed several hours after death there was no remarkable gross pathology demonstrated. The heart weighed 280 grams and was essentially negative. The right lung weighed 325 gms. and the left 300 gms. and grossly was normal. The uterus was enlarged, with myometrial hypertrophy and the endometrial surface was icteric tinged. The cervix and uterus were both intact.

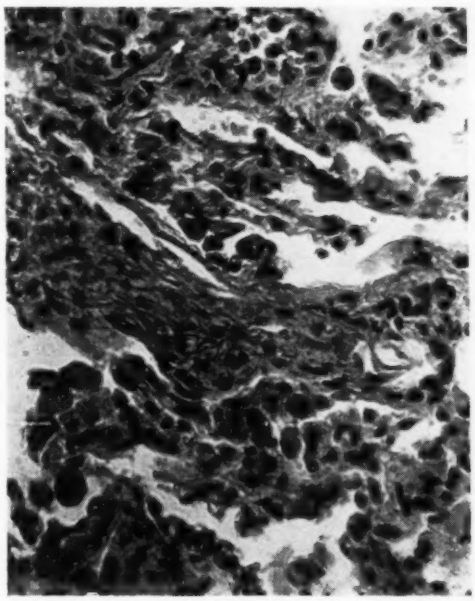

Figure 3.

Microscopically, on Figure 3, the smaller blood vessels show amniotic fluid debris. There were also diffuse patchy areas of atelectasis of both lower lobes. With these findings in the lungs and the clinical course we feel it is safe to assume this patient expired from amniotic fluid embolism.

*Case No. 2.* A 42 year old colored female, para VI, gravida VII, was admitted to the Tulane University Obstetrical Service at Charity Hospital on November 1, 1950. There was a history of slight bloody discharge one week prior to admission lasting one day. She had had crampy right lower quadrant pain ever since. Fetal movements were still felt. The evening of admission she was awakened by a wetting of her gown and sheets with a mass of blood and small clots. On physical examination her blood pressure was 136/80, pulse 86. The fundus was 33 cms., soft, nontender, vertex was floating and well out of the pelvis. Fetal heart tones were in left lower quadrant 150. There was 1 plus pedal edema. Sterile vaginal revealed no visible bleeding. The bag of waters was intact. Four days after admission she bled again. On sterile vaginal examination a margin of a low implanted placenta was believed felt. Bleeding ceased. On November 10, 1950, she was brought to the delivery unit in hard labor, with the head on the perineum. After being put on the table she suddenly began gasping for breath, face became distorted, bit her tongue and said, "I am going to die". She stopped breathing and became cyanotic. The heart stopped beating. Positive oxygen was given and a postmortem section was done and a living female delivered. This patient was brought to the delivery room at 3:30 P. M., and died at 3:36 P. M. The clinical diagnosis was pulmonary embolism.

At autopsy, #A50-1155, done four hours after death there was definite evidence grossly of yellow, friable meconium-like substance in the pulmonary arteries. This material could be expressed from the cut surface of the lung. The uterus showed marked yellow staining on the fetal side of the placenta, the uterus adjacent to the placenta, and one area of the placental site. No other significant gross abnormalities were noted. Microscopically, (Figure 4), the pulmonary arterioles were diffusely involved with emboli of amniotic fluid contents (i.e. squamous cells, mucin from meconium, bile pigment and lanugo hairs). Similar emboli were seen in the venules of the myometrium. Other

Figure 4.

findings were congenital abnormality of the orifice of the left coronary artery, cavernous hemangiomata of the liver, physiological congestive splenomegaly of pregnancy, acute endometritis, bilateral hydrothorax, and lymphoid hyperplasia of the thyroid.

*Case No. 3.* A 35 year old colored female, para II, gravida IV, was admitted to the Tulane University Obstetrical Service at Charity Hospital on August 24, 1951. She was admitted with moderate pains every five minutes, and stated that her membranes had not ruptured. Her previous deliveries had been by a midwife seventeen years ago, and she had an abortion one year ago. She was a clinic patient but did not attend the last trimester and stated that she had been unable to walk the last month due to swollen feet. During the second trimester she was given adequate treatment for syphilis. On physical examination blood pressure was 126/80, pedal edema 2 plus, fundus was 35 cm. and vertex presenting. The bag of waters was intact. Labor ceased, and she was sent to prenatal ward after having her membranes stripped and ruptured artificially. Two days later she went into active and progressive labor, when suddenly she cried out, thrashed about, had stertorous breathing and her blood pressure and pulse were unobtainable. Positive pressure oxygen was given, and patient expired within a matter of minutes. Clinical diagnosis of amniotic fluid embolism was made.

At autopsy, #A51-930, done soon after delivery there was no gross finding in the lungs other than atelectasis in both lower lobes. The uterus contained both fetus and placenta. There were several myomata visible. The fetal membranes were ruptured and stripped away from the surface of the uterus. The uterus was stained with meconium in several areas. The placenta was firmly adherent and showed no gross abnormalities. The infant showed no gross deformities.

Microscopically, in Figure 5, the lungs showed scattered areas of atelectasis and moderate areas of emphysema. Many of the large blood vessels contained varying amounts of hyaline, refractile cellular debris which appeared to consist of keratinized squamous epithelium. The smaller arterioles contained granular, amorphous pink staining material and some polymorphonuclear concentration. The venules of the myometrium contained small amounts of keratinized squamous epithelium in which nuclei could be seen. There was great hypertrophy of the individual muscle fibers. Other histological findings were focal necrosis and fatty infiltration of the liver, atherosclerosis and mesenteric adenitis.

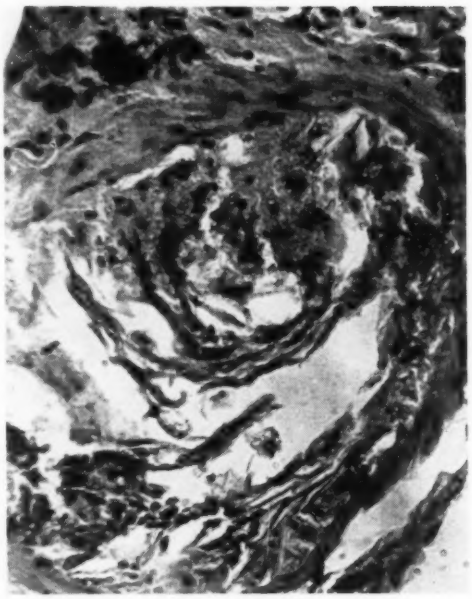

Figure 5.

## TREATMENT

The difficulty in antemortem diagnosis leaves little to offer as treatment. The usual supportive measures may be applied. Positive pressure oxygen was given to all our cases to no avail. Fluids have been given but with the respiratory difficulty and the pulmonary edema present in many cases this does not seem a wise procedure. Intravenous antihistamines should be helpful if the patient presents a picture of nonfatal embolism and anaphylactoid shock. The resultant afibrinogenemia in this type of case and the resultant postpartum hemorrhage can be arrested by the injection of 4 to 6 gms. of fibrinogen.[17] The clot formation may be quickly checked by withdrawing blood and determining the clotting mechanism. This should be followed by replacement up to but not to exceed the estimated blood loss, again being aware of the pulmonary embarrassment. We recommend large doses of papaverine for sedation rather than morphine because of its action on smooth muscle and its antispasmodic effect.

## CONCLUSION

The 3 cases presented caused 11.1 per cent of the maternal mortality on the Obstetric Service at Charity Hospital in 1950-1951. It is felt that amniotic fluid embolism is a frequent cause of embolic death in obstetrics. No doubt many in-

stances of fatal amniotic fluid emboli have occurred in the past unrecognized. This can be corrected only by vigilant search of the lungs for gross and microscopic evidence of the above described findings, or if autopsy is refused, examination of the blood from the inferior vena cava or right heart for amniotic fluid contents.

SUMMARY

1. Three proven cases of amniotic fluid embolism are presented and submitted to be added to the literature.

2. We have shown that the diagnosis can be made grossly.

3. Diagnosis depends on the observations made by the obstetrician in attendance and the diligent search for emboli at autopsy by the pathologist.

4. Although the condition can be definitely diagnosed there is no known method of prophylaxis or specific treatment of the acute amniotic fluid embolism.

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# THIRD DEGREE PERINEAL LACERATIONS*

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JAMES E. SAFLEY, M. D.
ALEXANDRIA

Since June 23, 1951, we have encountered 17 patients with third degree perineal lacerations, and we feel that our recent experiences with this condition should be brought to the attention of the Section on Obstetrics and Gynecology at this annual meeting of the Louisiana State Medical Society.

DEFINITION

During labor and delivery, injury to some portion of the birth canal is almost inevitable. These injuries may be divided into three categories in direct proportion to their seriousness and are known as first, second, and third degree lacerations.

A first degree laceration of the perineum is one which involves the vaginal mucosa and skin of the fourchette, merely exposing the underlying muscle fibers. A second degree perineal laceration is a deeper tear which includes any portion of the muscles of the pelvic floor down to, but not including, the sphincter ani. A third degree perineal laceration is one which involves the sphincter ani and some portion of the anus and rectum and which, if left unrepaired, will render the patient unable to control the passage of flatus and or feces. Some prefer to add a fourth category, i. e. the incomplete third degree laceration which involves the sphincter ani but not the rectal wall.

ETIOLOGY

Generally speaking, a third degree laceration of the perineum is the result of inju-

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dicious management of disproportion between the fetus and the maternal soft parts. Often, for one reason or another, a patient may deliver unattended, and in so doing, she may needlessly sustain a third degree laceration. The same unfortunate accident may occur when she is attended by untrained personnel, such as midwives, policemen, bus drivers, etc., or by trained personnel using either poor judgment, poor technique, or both. There are several conditions which will render the patient more susceptible to third degree tears; notably these are: prolonged labor, chronic vaginal infections, malpresentation, insufficient episiotomies, infantile vagina, vaginal scarring, precipitous delivery, too rapid breech extractions, oversized babies with shoulder dystocia, monstrosities, and toxemia with generalized edema. The perineum may rarely be perforated by destructive instruments or bony fragments and likewise by unskillful use of obstetrical forceps.

Any single one of the above-mentioned conditions may cause a third degree laceration of the perineum, but a combination of two or more is the rule. In most cases of prolonged labor, whether it be due to bony dystocia, occiput posterior position of the fetus, breech presentation or "piddling" uterine contractions, the vagina and its surrounding structures become edematous and devitalized to some extent, thus rendering the tissues less resilient, and therefore, more easily damaged. Chronic vaginitis due either to trichomonas or monilia organisms without proper treatment tends to secondary infection, thus making the perineal tissues more easily torn. Venereal diseases as a group may cause the same condition.

## DIAGNOSIS

Following delivery one should be aware of the possibility of third degree tears and examine each laceration and episiotomy with care. Those patients with old third degree tears will almost invariably give a history of a traumatic delivery. However, a history of repair of a rectovaginal fistula or of a hemorrhoidectomy may precede the onset of incontinence of flatus and feces. Often the poor unfortunate, who probably has been almost ostracized from society, will state that she is continent with formed stools but not with flatus and liquid stools. The patient will be unable to contract the sphincter ani on the examining finger and dimpling of the scar overlying the loose ends of the sphincter may often be noted. Absence of the perineal body may or may not be noted. In any event, a careful history and physical examination will make the diagnosis apparent.

## MATERIALS

Since June 23, 1951, we have seen and successfully repaired 17 patients with third degree perineal lacerations. Of the 17 cases, 6 were immediate lacerations and 11 were late lacerations. The 6 immediate lacerations occurred on our obstetrical service at the time of delivery. Of these 6 cases, 3 were incomplete third degree lacerations, which were extensions of midline episiotomies. They were repaired at the time of delivery and healed by primary intention. One of the immediate lacerations, a complete third degree laceration, failed to heal properly, the sphincter ends becoming separated. This condition in this patient has since been successfully repaired. The other 2 complete third degree tears were repaired immediately and healed by primary intention.

The 11 patients with late lacerations presented themselves with their deformities already present. The shortest interval of time between the injury and the repair of the laceration was twelve hours, and the longest interval of time between injury and repair was forty-five years.

## TREATMENT

In this series, patients who sustained third degree lacerations at the time of delivery were repaired immediately. Those patients who presented themselves with an old third degree laceration were prepared preoperatively by sterilizing the intestinal tract with sulfathaladine, 2 grams every six hours for three days; or stroptomycin, 0.5 gram orally every six hours for three days; or terramycin, 500 milligrams every six hours for two days. At the present, we

favor terramycin because of the time element involved. In addition, these patients were given Vitamin K, 2.5 milligrams, intramuscularly, twice a day during the time the intestinal tract was being sterilized. Two days prior to surgery they were placed on a low residue diet. The night before surgery they were given douches of 1:10,000 potassium permanganate and a cleansing soapsuds enema. The morning of surgery the douches were repeated and saline enemas given until the return solution was clear. One patient, who was first seen twelve hours after her injury, was immediately carried to the operating room where the wound was irrigated with 2000 cc. of normal saline. Careful exploration was done and the laceration repaired.

It is not the purpose of this paper to recommend any certain type of technique in doing the actual repair. We leave that to the discretion of the individual operator. We wish, however, to point out that of prime importance in the repair of third degree perineal lacerations, is the ample mobilization of affected tissues, hemostasis, and correct approximation of the tissues involved. In mobilization and approximation one should remember that there are three muscles associated with proper function of the anus, namely, the internal sphincter, the external sphincter, and the levator ani. The internal sphincter is really a thickening of the circular fibers of the rectum, situated around the anal canal forming a complete muscular ring 2 millimeters to 3 millimeters thick, which is composed of smooth muscle. It is separated from the external sphincter by a thin layer of fascia. The external sphincter is made up of bundles of voluntary muscle fibers which interdigitate before and behind the rectum. It is divided into three parts: a deep, a superficial, and a subcutaneous part. The deep portion forms a heavy ring above the superficial part and is distinctly separated from the puborectal portion of the levator ani by a definite layer of fascia. The levator ani is also divided into three parts: the iliococcygeus, the pubococcygeus, and the puborectalis portions. It is the puborectalis portion that is of most concern in the repair of a third degree perineal laceration, for fibers from this portion may be traced to the superficial portion of the external sphincter. If one will bear in mind this brief resume of the anatomy involved and mobilize and approximate all layers of muscle and fascia mentioned, he will be rewarded with the desired result—a patient who is continent.

It seems that the type of suture material used is of little importance for we have used chromic and cotton with equally good end results. Triple O, double O chromic and quilting cotton in the fascial and muscle planes, and triple O chromic in the skin and mucosa have all been used with satisfactory results.

Postoperatively, the same drugs were used to sterilize the intestinal tract; Vitamin K and the low residue diet were continued. No perineal pads were applied to the wounds. After each voiding, the perineum was cleansed by placing the patient on a bedpan and pouring a weak phenol solution over the perineum. Daily thermolite treatments were not used on any of our cases. All of the patients in this series were ambulated from the first postoperative day. When a patient complained of gas pains, a small, well-lubricated rectal tube was inserted for thirty minutes of every two hours, care being taken to direct the tip of the rectal tube posteriorly. On the fifth postoperative day the patients were placed on regular diet and all medication stopped. Two ounces of mineral oil were given by mouth and the following morning an oil and glycerine enema was given. This usually resulted in a gratifying evacuation of the rectum with the slightest possible trauma. Thereafter, 1 ounce of mineral oil was given nightly for a week or ten days to insure daily bowel movements.

## DISCUSSION

It is generally stated that there are three types of failures—those which result from gross infection, those which have a resulting rectovaginal fistula, and those which result from improper approximation of the sphincter ani or from a postoperative sepa-

ration of the fibers of the sphincter ani. We have encountered only one failure and that failure resulted when the repair was attempted by a junior resident. This occurred at the time of a delivery.

We believe that the failure resulting from gross infection, which will manifest itself by a complete breakdown of the repair, may be minimized by proper preoperative and postoperative care. The failures which result in rectovaginal fistulae may first be prevented by proper mobilization, hemostasis and correct approximation of all layers of tissue. They should manifest themselves by the appearance of feces into the vagina with the first or second bowel movement. Should this occur, the patient should be placed on the same regime, that is, antibiotics for four or five days and given a low residue diet. If the fistula fails to heal spontaneously, repair should not be attempted for eight to ten weeks. The third type of failure—separation of the torn ends of the sphincter, manifests itself by incontinence. Repair could again be attempted in one month, provided there is no evidence of infection, because this type of failure is not usually due to infection but to poor operative technique.

## COMMENTS

We have purposely failed to quote percentages and statistics. We have also omitted detailed case histories because we feel that in the time allotted we could better point out more significant factors in the management of third degree lacerations.

## CONCLUSIONS

1. The observation of 17 cases of third degree perineal lacerations during a ten month period in a general hospital of 275 beds makes one think third degree perineal lacerations are more common than one would ordinarily suspect.

2. Diagnosis of third degree perineal laceration can more easily be made if one bears in mind the possibility of this condition, especially when questioning the patient regarding incontinence of flatus and/or loose stools.

3. The time element between the occurrence and repair of a third degree perineal laceration appears to be of little significance.

4. With the proper use of antibiotics, both preoperatively and postoperatively, plus good surgical technique and an understanding of the anatomy involved, third degree perineal lacerations can be easily and satisfactorily repaired.

5. When delivering patients with malpresentations and in using obstetrical forceps one should always bear in mind Blundell's famous dictum: "Art, not strength," for it is when we become lax in the art of delivery and use brute force that we are most likely to unwillfully produce a third degree perineal laceration.

## DISCUSSION

Dr. T. A. Glass (Shreveport): I would certainly like to commend the authors on their selection of patients. I think we all agree that this is quite a large collection of cases for such a short period of time. We do not see anywhere near this wealth of material in our private work, and we do not see near as many of this type of case now, as we have in past years. I think the authors are to be especially commended on their results, in repairing 16 out of 17 third degree perineal lacerations successfully at first operations. This compares favorably with the several groups of similar cases that have been reported in the recent literature. I feel that the one most important thought for us to keep in mind to prevent occurrences of this condition is in the most careful use of forceps on difficult cases. Deep episiotomies must be done in these cases. Also, when doing a midline episiotomy, particularly when a large baby is present, the operator must be very careful in delivering the head and shoulders so as to avoid a third degree laceration. When either of the above conditions are present, we should be very meticulous in the ensuing inspection and repair of episiotomy so as not to overlook a possible tear in the internal sphincter.

The two general types of operations that are used in repair of complete perineal lacerations today are (1) the layer method with or without rectal sutures, and (2) the flap method as first described by Warren. Of course, there have been many minor modifications of both these methods, but the only really important advance was advocated and first practiced by Norman Miller at Michigan. Since 1931, he has advocated cutting the rectal sphincter lateroposteriorly to permit the free escape of gas and to prevent tension on the sutures that join the repaired ends of the sphincter. It is my humble opinion that this is a most important step in the operation and that it should always be done to help insure the success of the

repair. It is done at the completion of the operation with a stab wound through the skin and rectal sphincter down to the mucosa using a finger in the rectum, as a guide so that you can feel the relaxation and know that you have accomplished your purpose. This step is much more important when repairing old third degree lacerations because those are the ones in which there is most tension on the suture lines joining the ends of the sphincter.

I would like also to mention a little step in repairing the old cut ends of the rectal sphincter. That is to dissect out the ends clearly and put the sutures in the fascial plane about the muscle rather than in the muscle itself, as they will stand the tension much better and will be less likely to tear out when the ends of the sphincter are approximated.

We are very fortunate nowadays in having the various antibiotics at our disposal to use in preoperative preparation and postoperative care of patients on whom we operate for repair of complete perineal lacerations. I think that preoperative and postoperative care of these cases is just as important as the actual technique used in the operation.

I am in agreement with the writers who believe that the particular type of suture material used does not make much difference, but I do think that whatever suture is used should be of a small caliber and of such material that will give the least amount of tissue reaction. This is particularly important because we are working in an area where scarring is usually quite marked.

I would like to re-emphasize the remarks made by the authors that the most important steps in the actual operative repair of complete perineal lacerations are (1) complete and ample mobilization of the affected tissues, (2) complete and absolute hemostasis and (3) correct approximation of the tissues involved. I am sure that if one will follow the prescribed preoperative regime set up by the authors and keep the above remarks in mind while doing the actual operation and then follow up with the postoperative care described in their paper, that they can be just as successful with the repair of complete perineal lacerations as the authors have been. I would also like to mention that the delivery following this type of repair should be by cesarean section.

## TOTAL HYSTERECTOMY — VAGINAL OR ABDOMINAL

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Until relatively recent years, when a hysterectomy was deemed necessary, it was customary to remove only the corpus uteri and leave the cervix *in situ*. Gradually, as technical proficiency and experience were acquired, more and more gynecologists came to believe that in most cases it is preferable to remove the uterus together with its cervix. Such a total operation has several advantages over subtotal hysterectomy. First, it eliminates the possibility of development of cervical or endocervical neoplasms. This is an important consideration in older women, in whom the majority of hysterectomies is done, since the incidence of carcinoma is proportionately greater in them. For example, the incidence of carcinoma in the retained cervical stump has been estimated to be around 2 per cent.[1] Secondly, intractable discharges and vaginal bleeding, pelvic pain, infection and polyps, frequent complications of the incomplete operation, obviously cannot develop after total hysterectomy. Moreover, since there is little difference in the time required for performance of the total and subtotal operations,[2] the operative shock is no greater for the abdominal operation. Finally, the operative mortality for the total operation in experienced hands is negligible. Danforth[1] reported 1 death in 150 total abdominal operations or a mortality rate of 0.66 per cent as compared with a mortality rate of 0.8 per cent in 744 subtotal hysterectomies. In 1,734 total abdominal operations performed by me during the twenty-one year period ending December 31, 1951, the operative mortality rate was 0.11 per cent. It is probably true that for the inexperienced

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operator the subtotal operation entails a lower risk, since it is easier to perform, although in one report by a meticulous occasional operator[3] there were no operative deaths in 65 total and 39 subtotal abdominal hysterectomies for benign disease and the morbidity rates for the two groups were the same. There would therefore seem to be little if any indication for performance of a subtotal hysterectomy.

INDICATIONS AND CONTRAINDICATIONS

Although there is rather general agreement among authoritative gynecologists that when the uterus must be removed total excision is the treatment of choice, there is still considerable confusion in the minds of many regarding the best approach to the uterus. Since the indications for the abdominal and vaginal approaches are quite definite, there is actually no reason for difficulty in deciding which approach to employ in a specific case. A thorough history and physical examination should indicate the correct decision. This should depend upon the evaluation of the pathologic alterations found, whether or not the patient has had previous pelvic operations, and the presence or absence of obesity. Never should the decision be based upon the proficiency of the operator or his own personal whims. Every surgeon who does hysterectomies should be equally adept at removing the uterus abdominally as vaginally, so that his decision is not influenced by lack of skill for one or the other approach.

The primary indications for vaginal hysterectomy are uterine prolapse, particularly second and third degree ones, which are almost always associated with cystoceles and rectoceles, and extremely obese patients with a freely movable uterus and some degree of prolapse. It has been my experience that the best method of treatment for complete procidentia is vaginal extirpation of the uterus with repair of the cystocele and perineorraphy. I believe, as Dr. C. J. Miller taught, that vaginal hysterectomy is containdicated in any patient whose pelvic structures are fixed or in whom the cervix cannot be drawn down to the vaginal outlet.

Shortening of the vagina and prolapse of the anterior vaginal wall have been considered by some as undesirable results of the vaginal operation but postoperative examination of 430 women in whom vaginal hysterectomies were performed by me has revealed neither of these conditions. Nor does Danforth[1] consider shortening of the vagina a valid objection to vaginal hysterectomy. Urinary complications, however, do sometimes occur. There is no doubt that in indicated cases vaginal hysterectomy produces less postoperative shock and distention than abdominal excision and excellent end results are obtained.[4]

The abdominal approach is indicated in most cases when the uterus must be removed. It should be employed in women with malignant lesions of the pelvic organs, large uterine fibroids, a history of previous laparotomies, such as suspension, bilateral salpingectomy, oophorectomy or both, or previous cesarean section, endometriosis and previous pelvic infection. In women with extensive adhesions from previous operations, it is much easier technically to remove the uterus through an abdominal approach. One advantage of the abdominal approach is that injuries to the bladder and ureters, which are important in younger women, are less likely to result from this route. Another advantage of the abdominal approach is the fact that diseased appendices may be removed at the same time, thus preventing a second operation. Appendectomies at a later date have been necessary in several of our patients who had vaginal hysterectomies. It is probably true that more numerous and varied complications follow abdominal than vaginal hysterectomy but again it is difficult to evaluate this, since the conditions for which the abdominal approach is required are usually more serious than those treated by the vaginal route. This further emphasizes the fact that there should be no competition between the two approaches.

COMPLICATIONS

Leventhal and Lazarus,[5] who made a critical comparison of 300 consecutive cases of total abdominal hysterectomy with 300

consecutive cases of vaginal hysterectomy performed at the Michael Reese Hospital, concluded that the two approaches should not be competitive, since each has its own indications and contraindications. They found that the morbidity was greater for the vaginal than the abdominal route but more serious postoperative complications followed the abdominal. The period of hospitalization was approximately the same for both groups.

The possibility of the development of hernias following abdominal hysterectomy has been voiced by some advocates of the vaginal route. However, it has been my experience that if the same precautions are taken for proper closure of the abdomen as for excising the uterus, the incidence of hernias will be negligible. Moreover, hernias of the cul-de-sac definitely occur more often after vaginal than after abdominal hysterectomy.

In the performance of hysterectomy by either route, consideration must be given to the adnexa. As most gynecologists know, it is extremely difficult to determine the condition of the adnexa preoperatively. The advent of antibiotics and chemotherapy has greatly reduced the incidence of infections but we still see endometriosis and ovarian lesions all too often. For this reason the abdominal route is probably a better choice than the vaginal route, all other conditions being equal, as it offers better exposure for handling these diseases. Obviously, in all patients with healthy ovaries requiring hysterectomy for benign conditions, the adnexa should be left intact, especially in women who have not yet undergone the menopause regardless of age.

Regardless of the type of hysterectomy planned, it is important to explain to the patient preoperatively exactly what removal of the uterus will mean. She should be thoroughly cognizant of the fact that after operation she will be relieved of reproductive and menstrual functions. It has been my experience that most women whose families are complete are grateful to be rid of an abnormal function sooner than is normal. Since many women have misconceptions about the physiologic results of hysterectomy, it is equally important to reassure them that excision of the uterus will not produce abnormal hormonal reactions and will not affect sexual intercourse if this was normal preoperatively.

### EXTENSION OF INDICATIONS FOR HYSTERECTOMY

Before closing, it seems advisable to urge extension of the indications for hysterectomy. It is my own personal contention that the uterus should be excised in every woman past the reproductive years who has uterine pathologic alerations, such as extensive cervicitis with or without lacerations, endometriosis, pelvic infections, fibroids or alterations in the menstrual flow as hypermenorrhea or polymenorrhea. Our educated and well-informed modern women rightly insist on relief from the annoying symptoms caused by such pathologic alterations as well as protection against the possibility of the later development of cancer. Fortunately, the once popular treatment of menopausal or postmenopausal bleeding by roentgen ray or radium is rapidly losing favor. Moreover, attempts to correct pathologic alterations in the uterus by such supposedly conservative procedures as cervical amputation (surgically or by conization), suspension of the uterus, extirpation of the adnexa, ligation of the tubes or defundectomy, should be condemned without reservation. The sole function of the uterus is reproduction and when this organ becomes diseased after it has served its purpose, the procedure of choice is excision of the uterus. Only by his means can we expect to have contented patients, because they will be relieved not only of annoying symptoms but also of the anxiety associated with the thought that there is the possibility of development of malignancy in the future.

### CONCLUSION

In conclusion, it may be repeated that whenever it becomes necessary to remove the uterus, total hysterectomy, either abdominally or vaginally, depending upon the findings in the individual case, is the treatment of choice. There should be no competition in the selection of the two routes, for each has its own specific indications

and if the surgeon is adept in performance of either technic, his decision can and should be based on evaluation of the condition found in each individual case.

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## IMPORTANCE OF PROTEIN IN MATERNAL DIETS: AND A CHARITY HOSPITAL SURVEY

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The authors have reported that many women attending antepartum clinics at the Charity Hospital at New Orleans, have diets that are deplorably poor.[1] The present report is further documentation of that fact with emphasis on the protein poverty of the diets. The importance of protein in the dietary of pregnant women will be discussed.

In the initial investigation the diets of 100 women were rated as excellent, good, fair, poor, and very poor. None was found to be excellent and only one was good. Eighty-eight per cent of the diets of negro women and 74 per cent of the diets of white women were poor or very poor. No woman's diet met the allowances for pregnancy recommended by the Food and Nutrition Board of the National Research Council.

There has accumulated a large literature indicating that a nutritious diet is important for fetal and maternal health. Key references are in the publications of G. A. Goldsmith, C. Lund, B. S. Burke and H. C. Stuart. Protein is a basic constituent of the diet about which a great deal of interest has recently centered, paralleling the recognition of the importance of protein in surgery and medicine.

On entering pregnancy the protein requirements of women are increased. The need for protein to construct the larger uterus, the placenta, the infant, breast tissue, increased plasma and erythrocyte masses is apparent. Nitrogen balance studies show that in pregnancy large amounts of protein must be stored in preparation for parturition and lactation. Increased birth length and weight of infants have been found when mothers have larger amounts of protein in the diet; the same favored women had babies with superior physical ratings.[2] Osseous development in the newborn was found to be retarded more frequently in women whose diet was deficient in protein. The same observation was made of the calcification of teeth before eruption.[3] A number of studies attest that a good protein intake helps the mother to prepare for and maintain lactation. Patients with high protein levels seem to have fewer abortions.[4]

### TOXEMIA

It has long been suspected that a connection exists between diet and pregnancy toxemia. This complication tends to occur more frequently in lower income groups and poor diet is the most obvious common characteristic of these groups. Burke[2] and others have found a relationship between preeclampsia and general dietary rating. Tompkins reported a clinical experiment which he believed proved diet protects a woman against toxemia.[5] Blair, Luikart, P. Williams and others perceived a significant concurrence of protein deficiency and toxemia. There is not enough evidence to conclude that a low protein diet is an immediate cause of preeclampsia but the bulk of the facts favors the proposition that this specific deficiency is a predisposing factor. As toxemia is the leading cause of maternal death in the South the attention that

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should be paid to protein is evident. At the Charity Hospital at New Orleans, there is an extraordinary incidence of toxemia.

Strauss[6] observed that toxemic women fed a high protein diet benefited more from hospitalization than women on a low protein diet. In 1400 women, Holmes[7] demonstrated that the women on a high protein diet (110-120 grams) have about one half as much likelihood of developing toxemia as women on a diet of 60 to 70 grams of protein. At the Charity Hospital, in 1945, it was found that preeclampsia was more frequent among the patients most deficient in protein.[8]

In preeclampsia the plasma protein levels are lower than the already depressed standards found in normal pregnancy. With the consequent lowering of the colloid osmotic pressure the formation of edema is favored. This collection of extracellular fluid can be expected to contribute to the disturbances of kidney function, electrolytes and blood pressure which characterize preeclampsia.

In normal pregnancy there is a tendency to retention of sodium and water. This is exaggerated in preeclampsia and is one of the cardinal physiologic alterations of the disease. Water excretion is suppressed in protein-depleted dogs.[9] The acid-ash property of proteins could be expected to help reverse the preeclamptic's tendency to sodium retention.

## ANEMIA

Anemia is a frequent handicap to maternal health in this area. Lund showed that one half of 4015 pregnant women from Charity Hospital clinics were anemic.[10] In a study of women in labor at the same hospital, Woodworth reports a preponderance of subnormal hemoglobin values; 31 per cent had hemoglobin readings of less than 9.5 grams/100 ml. and 63 per cent had a mean corpuscular hemoglobin concentration below 30.[11] Ferguson found 53 per cent of 1669 pregnant women in rural Mississippi had hemoglobin levels below 11 grams/100 ml.[12] Anemia is expected to be more frequent where low nutritional standards prevail. There is a large body of data supporting the view that a good protein diet aids in avoiding anemia. A most manifest point is that hemoglobin is a protein.

In a group of women studied at the Charity Hospital the mean hemoglobin values of those with deficient protein diets was distinctly lower than those with excellent protein intakes.[8] The anemic women studied by Ferguson also had protein-poor diets.[13]

Bibb believed that his studies showed a relationship between low protein intake and poor hemoglobin formation in pregnancy.[14] Work with experimental animals has proved that both quantity and quality of protein are of paramount importance in hemopoiesis.[15] The delay in the maturation of reticulycytes in the presence of hypoproteinemia[16] suggests an explanation for the frequent superimposition of anemia and preeclampsia.

## CHARITY HOSPITAL SURVEY

The diets of 209 women attending antepartum clinics of the Tulane Service at the Charity Hospital, New Orleans, were analyzed for their protein content. To match the race incidence of births, 85 per cent of the patients were colored women. The survey was a 24 hour diet history and the patients were chosen at random from the clinic. The technique, advantages, and disadvantages of this type of survey have been described elsewhere.[1, 13, 17]

Figure 1 illustrates the protein deficiency

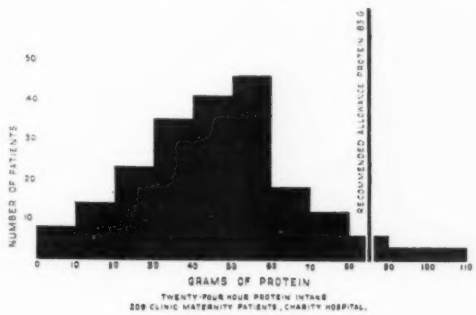


Figure 1.

found in the diets. The only comparably low protein intake in pregnancy ever reported in the United States that the authors have been able to find is a group of low income women in rural Mississippi reported by Ferguson and Keaton[13] Only nine (4 per cent) of the 209 women con-

sumed the recommended allowance of 85 grams. Thirty women (22 per cent) had consumed less than 30 grams and eighty (38 per cent) less than 40 grams. The median and arithmetrical mean protein intakes were both 45 grams.

The standard of 85 grams of protein daily was proposed by the Food and Nutrition Board of the National Research Council as the optimal intake in pregnancy. It is widely used as a level that provides a margin of safety. It has been considered too high by some and others consider it too low. Many of the women studied in the Charity Hospital clinics had protein intakes that were shockingly low by anyone's standard.

The richest sources of protein for these women were meat, milk and eggs. Of 100 women in a random twenty-four hour period 31 per cent had eaten no meat, 45 per cent no milk and 66 per cent no egg; only discouraging figures for protein consumption could be expected. To provide a comfortable margin of protein each day the gravid women could consume one good serving of lean meat (about one fourth pound), a quart of milk, an egg, a potato and three to four servings of bread and cereal foods.

## COMPARISONS AND COMMENT

Of 216 women studied at the Boston Lying-in Hospital only 38 per cent (ours, 72 per cent) had diets of under 55 grams of protein and only 14 per cent (ours, 50 per cent) consumed less than 45 grams.[18]

A group of pregnant women in New York had a mean protein intake of 67 grams (ours, 45 grams.)[19] Twenty-two per cent (ours, 4 per cent) had the prescribed 85 grams or more of protein in the daily diet. Seventeen per cent (ours, 50 per cent) of the women had diets of under 45 grams of protein. Meat was eaten at least once a day by 88 per cent of the New York women.

The protein intake of the Charity Hospital women does not appear to be improving. In 1945 it was reported[8] that 24 per cent of the negro patients and 14 per cent of the white patients were receiving less than 42.5 grams of protein daily (today, combined races, 43 per cent).

An important reason for the low protein intake of the women in the present study is the high cost of animal proteins. Equally significant factors are the habit of eating a high carbohydrate-fat diet and lack of information on food values, including a knowledge of the marketing and preparation of inexpensive meats. The diets of these women can be improved by instruction, at the same time infusing them with increased motivation. The magnitude of the responsibility of the hospital and its staff that provide delivery facilities for more mothers than any other hospital in the United States is unmistakable. As these women are often the homemakers the nutrition of the entire family will benefit as their diets improve. A point not to be overlooked is that this dietary protein record is not simply a record of the protein eaten during a particular pregnancy but represents the more far-reaching fact that this is the amount of protein eaten almost daily for a lifetime.

The old thought that patients with renal disease should not eat meat is not tenable here. Of the same vintage are the cautions against excessive meat eating in pregnancy. The pregnant woman with albuminuria should have her lost protein replaced. The often expressed fear that more protein is going to damage or overwork malfunctioning kidneys in the woman with pregnancy toxemia has no substance.

## SUMMARY

The importance of an adequate amount of protein in the diet of pregnant women is discussed. The relation of protein to pregnancy toxemia and anemia is emphasized. A survey of the diet habits of women attending antepartum clinics at the Charity Hospital discloses that these women have a woefully inferior consumption of protein. Fifty per cent of the women receive about one half of the recommended allowance of protein.

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# EARLY ABDOMINAL PREGNANCY

## PRESENTATION OF SIX CASES*

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Of the many problems in the field of obstetrics, few are as intriguing as abdominal pregnancy. This entity, even though it was the first form of extra-uterine gestation to be recognized, remains sufficiently rare to arouse considerable interest each time its diagnosis is made.

In this presentation, I propose to discuss abdominal pregnancy with reference to types, diagnosis, management, fate of babies, and finally, to present abstracts of 6 cases of early abdominal pregnancy from the records at the University of Arkansas School of Medicine.

There are two types of abdominal pregnancy: primary and secondary. Studdiford[1] cites three criteria to be fulfilled before a diagnosis of primary abdominal pregnancy can be established: (1) Both tubes and ovaries must be normal with no evidence of recent or remote injury. (2) There must be no evidence of uteroperitoneal fistula. (3) The pregnancy must be related exclusively to the peritoneal surface and young enough to eliminate the possibility of secondary implantation following a primary nidation in the tubes. He reported a case, in 1942, that fulfilled these prerequisites.

It has been suggested that endometriosis may be a predisposing factor in primary abdominal pregnancies. Secondary abdominal pregnancy is the type which has been secondarily implanted on the peritoneal surface after primary nidation elsewhere with subsequent rupture or expulsion and these cases far outnumber those of the primary type. The incidence of advanced abdominal pregnancies is a variable figure depending largely on the caliber of patient care and on the economical and educational level of patients. Physicians who take careful prenatal histories, and insist on frequent thorough prenatal examinations, and educate their patients on the course of normal pregnancy are doing much to prevent the catastrophies of advanced abdominal pregnancies. In order to prevent the frequently catastrophic end results of late abdominal pregnancies, it is extremely important that the ectopic pregnancy be recognized early in its course and terminated by prompt proper surgery. A review of numerous case reports of late abdominal pregnancies reveals almost without exception that proper attention to signs and symptoms early in the course of gestation would have resulted in the diagnosis of ectopic pregnancy.

The diagnosis of abdominal pregnancy is not always an easy one. A thorough history is probably the most important single

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aid in making this diagnosis. Although authorities disagree on incidence of previous pelvic infection, sterility, abdominal surgery, pelvic tumors, and abortions with regard to abdominal pregnancy, it is generally accepted that these entities predispose to extra-uterine gestation. The majority of patients reported were between 25 and 35 years of age. A review of the present illness may bring out numerous symptoms such as abdominal pain and tenderness, irregular vaginal bleeding, loss of weight, severe indigestion, constipation, severe dysparunia, nausea and vomiting, and fainting. The fact that abdominal pregnancies are almost always secondary to tubal rupture or abortion should make any physician view with suspicion any pregnancy with a suggestive history. Ware,[2] in a recent article, stated that abdominal pregnancy should be thought of and ruled out any time a patient gives history of (1) persistent pelvic or abdominal pain after the second or third month of pregnancy; (2) severe indigestion, constipation, loss of weight; (3) fetal movements persistently high or very low; and (4) irregular vaginal bleeding. He goes on to say that physical findings usually include abdominal tenderness, fetus in abnormal position, fetal heart tone usually louder than average, superficial small parts, long thick closed cervix corresponding in size to gestation rather than to size of uterus which is usually about the size of a three months' gestation, no contractile wall surrounding the fetus, and cervix in abnormal position displaced by palpable mass. Jarcho[3] points out that Hegar's sign and ballotment are characteristically absent and after five months the abdomen becomes very sensitive and fetal movements are very painful. This pain may confine the patient to bed. At term, spurious labor may set in with painful contraction and uterine bleeding.

All these findings will probably never be elicited in any one patient, and the diagnosis is usually made by correlation of physical findings, history, and laboratory aids. Laboratory tests of value would naturally include x-ray (revealing fetal position which is commonly abnormal) and Aschheim-Zondek test for trophoblastic activity. Cul-de-sac aspiration using a large bore needle was recommended by all authors whose articles were reviewed.

The management of abdominal pregnancy as outlined by Jarcho is somewhat dependent on the duration of gestation and viability. If the patient seeks advice at time of tubal rupture or abortion, then the treatment is simply laparotomy, with removal of gestation products, and hemostasis. In late abdominal pregnancies with a viable fetus, the question of whether to wait and obtain a living child sometimes arises. The dangers of this should be fully explained to the parents. If the decision is made to wait, hospitalization with preparations for immediate laparatomy is indicated. Gardner and Middlebrook[1] state that complications increase during and after the eighth month and concur with several authorities that the thirty-sixth week is the best time to operate. Some surgeons recommend immediate laparotomy as soon as a diagnosis is made, regardless of viability. Abdominal pregnancies have sepsis as a constant source of danger because of a developing placenta which may be attached to the intestine and result in perforation. If the fetus is dead, some authorities recommend waiting until placental blood supply is obliterated. Considerable controversy exists over management of the placenta, but I believe most authorities agree that leaving the placenta in place is probably best. Ware points out that correct diagnosis is the factor that will save more mothers and babies. Of several publications the lowest maternal mortality rate was 11.1 per cent and the highest 30 per cent. Jarcho states reduction of mortality in abdominal pregnancy largely depends upon early diagnosis, judicious management of the placenta and free use of blood transfusions.

An interesting publication by Suter and Wichser[5] of Louisiana State University and Charity Hospital revealed that the fate of viable babies in extra-uterine pregnancies is not a happy one. They followed up 31 recorded cases and added 4 of their own,

all over twenty-eight weeks' gestation, and found 38 per cent deformed and 24 per cent died before the eighth day. Of their 4 cases 3 died and in 24 hours, 3 were deformed, and a deformed child lived. They reviewed several articles pointing out the following figures: (1) Hellman and Simon's 1935 report of 316 cases had baby development recorded in 64 cases, 46.6 per cent were deformed, 44 per cent survived more than eight days, 36 per cent of the viable were deformed. (2) Stabler in 1938, reported 266 living babies at delivery of which 57 per cent lived more than eight days and 10.5 per cent of these were deformed. (3) Lelling in 1938, had 82 follow-ups of 106 cases and 39 per cent were deformed. (4) Mitra in 1942, reported 179 cases of five months' or more gestation of which 23.5 per cent lived. Thirteen were followed and 10 of them were deformed. (5) Beacham reported 20 abdominal pregnancies of which 15 were viable. Suter concludes that one-fourth of extrauterine pregnancies after the fifth month will result in viable living babies, one-third of these will be deformed, one-half of the viable babies will live more than eight days.

Between January 1, 1940, and December 31, 1949, there were a total of 13,895 obstetrical and gynecological admissions to University Hospital. Ectopic pregnancy was diagnosed in 70 cases with an incidence of 0.5 per cent and abdominal pregnancy was diagnosed in 9 cases (6 early and 3 late cases) with an incidence of 0.064 per cent. These early abdominal pregnancies are presented in order of admission to hospital as follows:

CASE REPORTS

*Case No. 1.*—21 year old colored female, gravida 1, para 0—sts neg.

Date of admission: April 29, 1942. Date of operation April 29, 1942. Last menstrual period, January 29, 1942.

Past History: Negative.

Present Illness: Fainting spells, 1 month; vaginal spotting, three weeks; vomiting, three weeks.

Admission Signs and Symptoms: Abdomen distended and tender, palpable mass and fluid in right lower quadrant. Uterus firm but size of 10 weeks' gestation. No vaginal bleeding. Pulse 120/min. BP 115/60. Temp. 99.6, RBC 1.37, HB. 42 per cent, WBC 19.7.

Course in Hospital: Diagnosed as ruptured ectopic and taken to operating room 4½ hours after admission.

Operative Findings: 1. Ruptured right tube with attachment of placenta to omentum and part of bowel. 2. 2000 cc. old and fresh blood. 3. fetus 3-3½ months gestation.

Operation: Right salpingectomy. Part of placenta left in place.

Postoperative Course: Uneventful.

Follow-up: Spontaneous delivery of term viable fetus 1 year later.

*Case No. 2.*—29 year old colored female, gravida 1, para 0. sts negative.

Date of admission: July 31, 1945. Date of operation August 21, 1945. Last menstrual period, April 15, 1945.

Past History: Ten years' sterility. Questionable gonorrhea two years previously.

Present Illness: Sudden sharp pain in lower abdomen 1 month, previously while straining. Patient vomited following this. Patient seen by doctor at this time and diagnosed as culdesac abscess. Recurrent lower quadrant pains every 3-4 days. No vaginal bleeding.

Admission Signs and Symptoms: Obese abdomen, lower abdominal tenderness, bulging culdesac mass, very tender mass 15 cm. above pubis. No vaginal bleeding. Pulse 138/min., B.P. 120/80, temp. 100°, RBC 2.1, hb. 6 gm., WBC 16.7.

Course in Hospital: Diagnosed as culdesac abscess. Culdesac aspiration—honey colored fluid and bright and dark blood. Cultures—no growth. Continued pain. Positive Aschheim-Zondek—then laparotomy.

Operative Findings: Blood in abdominal cavity, numerous adhesions between omentum, bowel, uterus, tubes and ovaries. Fetus, 14 cm in size in culdesac with placenta attached to right tube and ovary. Myoma, 5 cm. on posterior wall of uterus.

Operation: Bilateral salpingectomy, partial right oophorectomy and removal of products of pregnancy.

Postoperative Course: Temperature 103° first postoperative day.

Follow-up: Three months postoperatively. Frequent "gas pains" 2° retroversion of uterus.

*Case No. 3.*—29 year old, white female, gravida 5, para. 3. sts negative.

Date of admission: November 4, 1947. Date of operation: November 18, 1947. Last menstrual period, August 21, 1947.

Past History: Spontaneous abortion, 1943, with subsequent term delivery 1945. Irregular periods since 1945, jaundice 5 months prior to admission.

Present Illness: Slight irregular vaginal bleeding since August. Six weeks prior to admission after 6 Carter's Little Liver pills, severe epigastric and left lower quadrant pain. Abdomen distended and "gas pains". Sharp suprapubic pain with

micturition. Projectile vomiting nine days. Black urine two weeks.

Admission Signs and Symptoms: Abdomen quite tender, distended, with marked rebound tenderness. Left adnexal mass. Eroded bleeding cervix. RBC 1.69, HB. 35 per cent, WBC 8.8, B.P. 100/56, pulse 94, temperature 99.8.

Course in Hospital: Multiple transfusions. Aschheim-Zondek test positive. Culdesac puncture with blood on aspiration.

Operative Findings: Placenta attached to posterior surface of uterus, left broad ligament and several loops of bowel. Three inch fetus. Left tube ruptured.

Operation: Left salpingectomy, removal of fetus.

Postoperative Course: Uneventful.

Follow-up: Two months' check—suprapubic pain, greenish discharge, cystocele and rectocele.

*Case No. 4.*—26 year old, colored female, gravida 3, para 2, sts neg.

Date of admission: December 30, 1948. Date of operation January 28, 1949. Last menstrual period, October 3, 1948.

Past History: Seven years' sterility.

Present Illness: Three weeks previously, lower abdominal pain and vaginal bleeding. This grew worse progressively until admission.

Admission Signs and Symptoms: Abdominal tenderness with guarding and rebound suprapubic tender mass. Culdesac and right adnexal tender mass. RBC 2.7, hb. 10 GM., WBC 9.3, temp. 98°, B.P. 120/76, pulse 80.

Course in Hospital: Negative culdesac aspiration. X-ray: No fetal skeleton, Aschheim-Zondek positive.

Operative Findings: Laminated clots. Fetal sac behind uterus. Twelve cm. fetus, placenta separated.

Operation: Laparotomy with removal of placenta and fetus. Draining through stab wound in right lower quadrant.

Postoperative Course: Uneventful.

Follow-up: 2 months—grapefruit size mass in culdesac. 6 months—induration of culdesac: 11 months—induration of culdesac.

*Case No. 5.*—32 years old, white, gravida 5, para 4, sts negative.

Date of Admission: April 29, 1949. Date of operation, May 12, 1949. Last menstrual period, September 8, 1948.

Past History: Last pregnancy 1943, resulted in neonatal jaundice and death of twins.

Present Illness: Sharp "dulling" pains in left lower quadrant in December and January. Vaginal bleeding in December and January. Severe pains plus bleeding April 17, 1949, which continued until admission. Lower abdomen very tender since April 17, 1949. Hospitalized and treated in December and January.

Admission Signs and Symptoms: Distended, soft, tender abdomen, bleeding from os which was 1 cm. dilated. Fundus to level of umbilicus. Marked induration of culdesac and parametria. RBC 2.75, hb. 8.5, WBC 13.4, temperature 103°, pulse 102/min., B.P. 120/70.

Course in Hospital: Multiple transfusions with reactions. Laboratory studies. Medical induction of labor without success.

Operative Finding: Large mass posterior to uterus incorporating omentum, bowel, adnexal structures, and uterus. 20 cm. necrotic fetus. Several transfusion reactions on table.

Operation: Subtotal hysterectomy with removal of fetus.

Postoperative Course: Jaundice on same day. Kidney shut-down, progressive rise in NPN, fecal fistula, expired June 2, 1949. Postmortem done. Cause of death: Lower nephron nephrosis. Rh negativity revealed only after several positive transfusions.

*Case No. 6.*—32 year old, colored, gravida 1, para 0—sts negative.

Date of Admission: May 5, 1949. Date of operation May 9, 1949. Last menstrual period, January 15, 1949.

Past History: G.C. at 13 years of age. No birth control. Antileutic treatment. Appendectomy and pelvic exploration, 5 years previously.

Present Illness: Dark brown vaginal spotting in March. Two episodes of lower abdominal cramping and vomiting in April. May 1, lower abdominal pain and severe vomiting. May 5, abdominal distention, persistent.

Admission Signs and Symptoms: Distended, guarded, tender lower abdomen, culdesac and right adnexal mass. Temperature 101°, pulse 110/min., B.P. 115/50, RBC 1.57, hb. 4 gm., WBC 6.9.

Course in Hospital: Decompression and laboratory studies and transfusion. (?) Pulmonary embolism on second hospital day. Culdesac aspiration revealed old blood.

Operative Findings: Placenta attached to left broad ligament. Fetus, 7 cm., old and fresh blood.

Operation: Placenta and fetus removed. Left infundibulopelvic ligament ligated.

Postoperative Course: Uneventful.

Follow-up: None.

SUMMARY

A general discussion of abdominal pregnancy has been given.

The advantages of early diagnosis of abdominal pregnancy have been set forth and a plea made for early recognition of abnormal signs and symptoms by both patient and physician.

Six cases of early abdominal pregnancy

have been presented. There was one maternal death resulting from transfusions with incompatible blood.

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# STRESS INCONTINENCE IN THE FEMALE*

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NEW ORLEANS

One reads with a sense of confusion the contradictory and often misleading literature on this subject since the original publication of Howard A. Kelly,[1] in 1913, in which he described the disorder and suggested a method of cure. Quoting directly from the original article:

"There is a peculiar form of incontinence of urine in women which either follows childbirth, or comes on about middle age and is not associated with any visible lesion of the urinary tract. Sometimes the most suggestive picture that can be seen by a cystoscope is a gaping internal sphincter orifice which closes sluggishly. In the incontinence which comes on at about 40 years or over, the patient usually first notices the occasional escape of a few drops of urine as she makes some unusual exertion. This grows worse until, at last, a little urine runs out whenever she coughs, laughs, sneezes, lifts anything, or steps up high. The condition may finally become so bad that the underclothes are constantly wet and soiled with the malodorous secretions.

"For a long time surgeons have tried to relieve this condition by a variety of operations, some of them more or less bizarre, designed to act upon the external urethral orifice by contracting it, or to resect the vagina at the internal orifice, or to kink the urethra, or in one way or another to compress it. The operators rarely succeed. I have seen many patients subjected to them, but none relieved.

"The key to successful treatment lies at the internal orifice of the urethra and in the sphincter muscle which controls the canal at this point . . . ."

All of these years following Kelly's original article, surgeons have been successful in relieving 80 to 90 per cent of the cases of stress incontinence by employing his original operation of tightening the internal sphincter at the bladder neck. Yet, every few years some new operation is introduced without sound reasoning, and with little accurate inquiry as to the true nature of the disorder.

## PHYSIOLOGY

It has been shown, in 1936, that more than two-thirds of the female urethra can be safely excised without causing loss of urinary control,[2, 3] indicating that the normal mechanism responsible for continence does not reside in the distal two-thirds of the urethra. Yet, in 1947, Ries and DeCosta[4] report their successful experiences in relieving stress incontinence by employing an operation originally described by Berkow,[5] in which the urethra is "advanced and slightly angulated thereby narrowing the lumen . . . ." Finally, in 1949, Muellner[6] apparently unaware of preceding, if less complete, studies of a similar nature by Millin and Read[7] in England reported the results of his fluoroscopic studies on the physiology of micturition, Using a contrast medium in the bladder, subjects were studied in the recumbent and standing positions.

The effects of coughing and straining were noted, and the events at the beginning of micturition and when the urinary stream was inhibited were carefully observed. Spot films of the bladder while the patient was in various positions and during micturition were taken . . . The precise pathology of exertional incontinence became apparent when the findings in the normal nullipara and in the continent multipara were com-

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pared with the observations in women with stress incontinence. All of the films in Muellner's report are anteroposterior views of the bladder. In a study now being done by Jeffcoate[8] of Liverpool, England, he has recorded lateral views of the bladder and urethra which shed a little more light on the etiology of stress incontinence. In the following diagrammatic sketches the anteroposterior and lateral views are compared.

In the normal continent nullipara (Fig. 1) anteroposterior x-rays taken in the

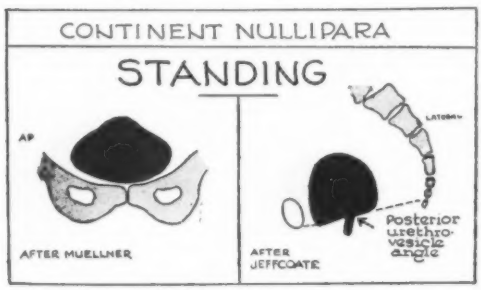


Figure 1.

standing position show the bladder base to be smooth in outline and lying just above the symphysis pubis—the dome of the bladder is somewhat pointed due to its intact ligamentous and fascial support. Lateral x-rays show the base of the bladder to be on a line from the inferior border of the symphysis pubis to the coccyx. When the bladder and urethra were visualized it was noted by Jeffcoate[8] that in continent individuals, whether nulliparous or multiparous, there was one consistent finding, namely, the persistence of the posterior urethrovesical angle.

On voluntary micturition (Fig. 2) the

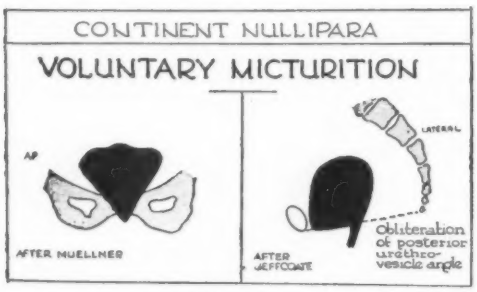


Figure 2.

bladder base descends and becomes pointed in the region of the internal sphincter. Lateral views show the obliteration of the posterior urethrovesical angle.

In the continent multipara (Fig. 3.)

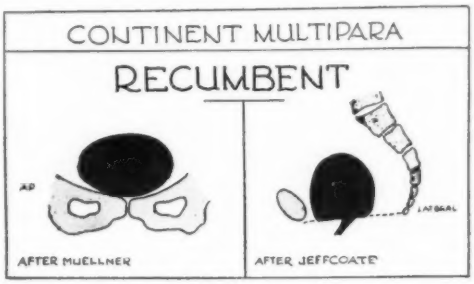


Figure 3.

events are similar with the exception that the bladder is somewhat larger and the ligamentous and fascial supports are more yielding. The base of the bladder descends to a lower level on standing (Fig. 4), and

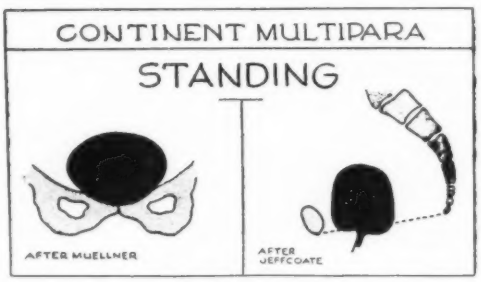


Figure 4.

with coughing or straining the whole bladder descends. (Fig. 5). It will be noted in

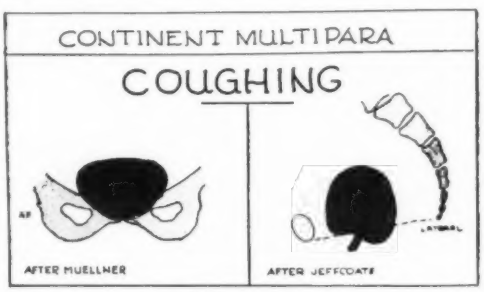


Figure 5.

the continent multipara that in the lateral views, although the bladder descends, the posterior urethrovesical angle is maintained. This fact probably explains why women with severe bladder prolapse may

still be entirely continent under stress conditions.

With the incontinent patient in the recumbent position, (Fig. 6) again the events

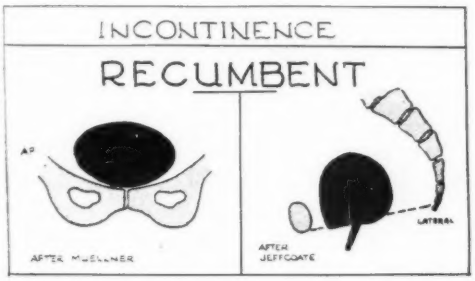


Figure 6.

are quite similar to the continent patient. On standing (Fig. 7), there is some pointing

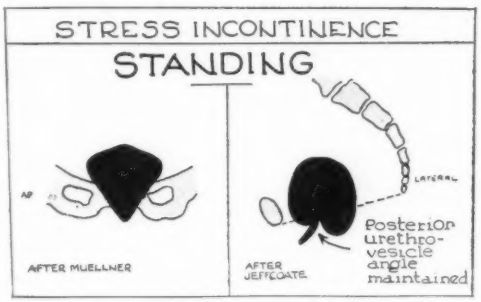


Figure 7.

of the bladder base similar to that seen in voluntary micturition but there is maintenance of the posterior urethrovesical angle. On coughing (Fig. 8), the base of

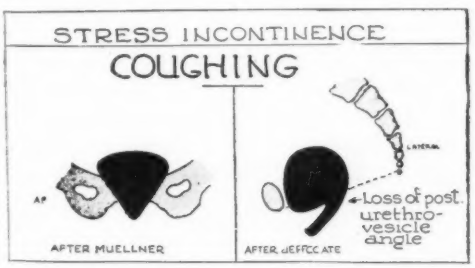


Figure 8.

the bladder descends to a more considerable degree, particularly the region of the internal sphincter, and the posterior angle is lost.

According to Muellner:

"While lying quietly the internal sphincter is shut off normally, showing no evidence of injury or deficiency. When the patient is now made to stand up, the bladder assumes an appearance which has been present in every case of incontinence studied by means of this technique, and one which can therefore be said to be typical of stress incontinence. While the bladder base descends as a whole in the erect as compared to the recumbent position, it is specifically the region of the internal sphincter which descends most and becomes the most dependent portion of the bladder. The bladder base assumes the pointed appearance (Fig. 7) characteristic of the bladder poised for micturition. It then takes only very little further descent to open the internal sphincter and to allow a jet of urine to escape. It is for this reason that most women with stress incontinence do not lose their urine when recumbent but lose it when they suddenly increase the intra-abdominal pressure while they are up and about."

Women with severe incontinence are apt to lose their bladder contents with the initial stress, because the supports of the internal sphincter lack the necessary tone to pull the sphincter up to level and thus inhibit the stream voluntarily. Study of incontinent nullipara revealed normal cystograms in the recumbent position. However, on standing, the pointed or nippled defect appeared at the internal sphincter and coughing allowed a jet of urine to escape.

Muellner offered no particular surgical solution to the problems which he illustrated so clearly but to him must go the credit for initiating this particular type of study which was later duplicated by Marchetti,[9] and at the present time by Jeffcoate. By this means we have derived our first understanding of the pathology of stress incontinence.

### MARSHALL-MARCHETTI PROCEDURE

In 1949, an article appeared by Marshall, Marchetti, and Krantz,[10] describing a new operation for the correction of stress incontinence by suprapubic vesicourethral suspension. Marshall had become interested in the following manner: It had been noted for a long time that male patients who had undergone perineal or abdominoperineal resection of the rectum frequently suffered vesical dysfunction, specifically urinary retention, for some still unknown reason, other than that these patients had a marked sagging of the vesical base. Relief in these cases could be obtained by applying perineal

pressure or by transurethral resection. However, frequently a transurethral prostatectomy relieved the retention only to result in incontinence. On one of these cases, the first operation now called the "Marshall-Marchetti" procedure was performed. Simple suprabubic suspension of the vesical outlet, by suturing to the pubis, completely corrected his urinary control which has remained normal. Giving due credit, Hepburn,[11] in 1927, and later Miller,[12] in 1945, had performed this same operation to correct prolapse of the female urethra (not for incontinence). However, Miller had noted that one of his patients had developed better control following operation.

Nevertheless, Marshall, Marchetti, and Krantz[10] conceived the notion of applying this operation to the problem of common stress incontinence in the female. Accordingly, a prognostic test was devised to select cases for the operation. The test is made by filling the bladder with 250 cc. of saline and observing the patient's urinary control while coughing and straining in the prone and standing positions. The bladder is again filled and the test repeated while the vesical neck is held elevated and fixed by an Allis clamp attached to the vaginal wall (previously injected with novocaine) at a point judged to be under the interureteric ridge. The Allis clamp is pointed towards the umbilicus and downward movement is prevented on straining and coughing. If this elevation and fixation affords some urinary control, the test is considered favorable and pulling the vesical base downward by means of the Allis clamp should decrease control.

The operative technique as it has been now modified is as follows: A Foley (24F) catheter with a 30 cc. balloon is passed into the bladder transurethrally and the bag inflated. The space of Retzius is entered through a suprapubic incision, and the bladder and urethra separated by blunt dissection from the transversalis fascia and posterior surface of the pubis, down to within 1 cm. of the external urethral meatus. Deeply placed sutures are taken into the paraurethral tissue on either side, alternately forming two parallel rows, each suture being anchored to the cartilage of the symphysis at a sufficiently high level to elevate the urethra and bladder neck. If mild traction is kept on the urethral catheter, each successive suture can be taken into the angle between the catheter and the balloon thus slowly elevating the bladder neck. More lateral sutures may be used to draw up any redundancy of the vaginal wall. In this manner the space of Retzius is closed and the urinary tract is elevated and drawn backward from the introitus and fixed in broad apposition to the pubis. When cartilage is not available, periosteum is used. Additional sutures may be placed in the lower and lateral portions of the bladder, attaching them to the rectus fascia.

The catheter is withdrawn at the completion of the operation or on the following day if the urine is too grossly bloody. The authors reported on 50 cases so treated. The largest group of similar cases—38 females with the common variety of stress incontinence included 25 who had forty previous standard operations for the relief of incontinence, without success. Following the "Marshall-Marchetti" procedure 74 per cent were completely cured, 18 per cent improved, and 8 per cent unimproved.

It will be noted that in Marshall's original report, no physiologic basis was presented to account for the success of the operation performed, nor any reason sought for the failure of previous operations of a different type. However, in May 1949, Andrew Marchetti[9] presented the results of such a study before the American Gynecologic Society, perhaps prompted in his thinking by the previous work of Muellner.[6] In general, 12 patients with the complaint of stress incontinence, 5 of whom had had previous operations intended to relieve this symptom, were studied preoperatively and postoperatively. In accord with Muellner, cystometric studies were found to be essentially normal (there being no cases with increased intravesical pressure or "cord bladder"), and the cystographic studies were in complete confirmation of Muellner's studies. In the postoperative studies, the most striking

changes noted in the cystogram were the elevation and restoration of contour of the bladder neck. One surgical failure by the "Marshall-Marchetti" procedure was studied, and the cystogram revealed that no anatomical change had been effected, because of error in surgical technique by an inexperienced operator. This case was subsequently cured when the procedure was repeated.

In explanation of the mechanism wherein this operation corrects stress incontinence, Marchetti reverts back to Kelly's original dictum: "The key to successful treatment lies at the internal orifice of the urethra and in the sphincter muscle which controls the canal at this point."[9] He then adds: "Most sphincters have two or more relatively firm attachments for the execution of their normal function—simple elevation and fixation of the vesical outlet and urethra provide such attachment, and are a major factor in the maintenance of urinary control."

REVIEW OF 36 CASES

Since Marchetti's publication, we have been interested in the retropubic vesicle suspension, and have performed the operation in 36 cases. Our patients have been studied preoperatively by the usual methods, including cystoscopic examination to rule out such conditions as chronic urethritis and cystitis, urethral stricture, urethral and bladder polypi, and diverticula. Hypertrophy of the vesical neck has been met in only one instance, which will be described later. Preoperative and postoperative cystograms have been obtained on some patients although it is not considered necessary to elaborate such details with geometric mensuration as described by Thomas Ball at Cornell.[13] We feel that such elaborate radiographic studies add little to the original suggestion of Kelly,[1] that a mushroom (or Foley) catheter be placed in the bladder prior to surgery to facilitate identification of the bladder neck.

The small series of cases upon whom we have operated have been uniformly relieved of their stress incontinence, with two exceptions, which cases will be reported in detail.

In 19 of the 36 cases in this series, the "Marshall-Marchetti" procedure has been combined with abdominal hysterectomy, in 3 cases it has been combined with uterine suspension, and in 14 cases the procedure has been applied singly. The youngest patient was 26 and the oldest 69 years of age. There has been no mortality or morbidity attributable to the procedure. Although osteitis pubis[14] has been reported following retropubic prostatectomy, we have not encountered this complication. Only 5 of the patients had prior surgery for the correction of incontinence—1 Watkin's interposition operation, 3 vaginal hysterectomies with cystocele repair, and 1 cystocele repair alone. In carrying out the operation, we have followed the technic with modifications as presented by Marchetti in his second reported study,[9] with one small exception. After the vesical neck has been adequately suspended, fixation has been carried out laterally along Cooper's ligament, two or three sutures being placed on either side of the midpoint of the iliopectineal line. It is felt that this slight modification takes some of the strain off the more important sutures in the midline, and serves to prevent asymmetric displacement or lateral descent of the bladder. Perhaps this is an unnecessary precaution.

With the exception of 2 patients, our results have been gratifying, and we have now extended indications for the operation to the younger age group. These are principally cases with uterine retroversion, beginning prolapse and symptomatic cystocele, in whom uterine suspension is also advisable. There have been 2 instances of temporary apparent failure, which on study proved due to mild trigonitis; these responded quickly to conservative measures with complete relief of symptoms. It has been noteworthy among our cases, that when the urethral catheter is removed (twenty-four hours postoperatively) voluntary bladder evacuation has been prompt, and complete. We have noted no residual urine in any of our cases. Early ambulation has been practiced, and our patients have been usually

discharged from the hospital on the seventh postoperative day.

We have not found that the "Marshall-Marchetti procedure" adds to the shock of other operations, as long as the usual supportive care is maintained (replacement of blood loss, adequate oxygenation, etc.). One of our more recent cases combined total abdominal hysterectomy, bilateral salpingo-oophorectomy, inferior vena cava ligation, and bilateral interruption of the lumbar sympathetic chain (for recurrent femoral phlebitis, unimproved by previous femoral ligation). After the peritoneum was closed, a Marshall-Marchetti procedure was done, and this patient ambulated the following day. She was discharged from the hospital after an uneventful postoperative course, on the seventh postoperative day.

Another recent case combined Wertheim hysterectomy with bilateral Taussig gland dissection and bilateral lumbar sympathectomy, followed by Marshall-Marchetti procedure. This patient's convalescence was complicated by phlebothrombosis requiring bilateral superficial femoral vein ligation on the second postoperative day. Postoperative course was further complicated by peroneal nerve injury and atelectasis. She was discharged on the thirty-ninth postoperative day with no genitourinary complaints.

The two failures present features of interest. The first patient complained of urinary frequency caused by retention of urine following a previous abdominal hysterectomy. When this had persisted for several years, with chronically infected urine, a transurethral resection of the bladder neck was judged advisable and carried out. Following this procedure, the patient was relieved of symptoms over a period of months then became incontinent. When this latter symptom became intolerable, a vesical neck plication was performed—with accidental incision of the bladder mucosa. The surgical defect was repaired, but with resultant postoperative vesicovaginal fistula. Over a period of time, this healed spontaneously, but urinary incontinence persisted to a marked degree—this patient may have been well described as a "soaker". In an effort to afford this patient with some relief short of diversion of the urinary stream, consultation was requested, and the case reviewed by one of us (EWN). Physical findings were essentially normal. the prognostic test of Marshall-Marchetti was equivocal. Cystoscopic studies revealed only a very limited bladder capacity, and marked relaxation of the vesical sphincter. A retropubic bladder suspension with elevation and anterior fixation of the vesical neck was performed. For several days it seemed as though the procedure had been successful, when frequent uncontrollable emptying of the bladder returned. While the urine remained pus-free, incontinence persisted at bed rest, even with a retention catheter in place! It was thought that psychic factors played a large part in this particular case, but psychiatric consultation was declined. In desperation, a bilateral uretero-intestinal anastomosis was decided upon by two urologists in consultation. This procedure was carried out successfully from an anatomical standpoint, but the patient expired seventy-two hours after operation, with an autopsy diagnosis of hepatorenal failure. The second failure was in a 46 year old patient who had had a vaginal hysterectomy with anterior and posterior repair eight months prior to her last admission at which time a Marshall-Marchetti procedure was done. Following the vaginal hysterectomy and repair her urinary incontinence was as bad or worse than before operation with poor anatomic result as well. The patient also had an inguinal hernia. Preoperative studies were negative for any intrinsic or extrinsic bladder pathology. Following the Marshall-Marchetti procedure the patient was entirely continent. Urine was clear and catheter removed on first postoperativetive day with spontaneous voiding and no residual urine. She had a benign postoperative course and was discharged on the seventh postoperative day. Cystogram studies revealed the bladder to be well supported and it was felt that the patient had excellent symptomatic and anatomic results.

Four weeks following surgery she was seen in the clinic and had no genitourinary complaints. Eleven weeks following surgery she again became incontinent and on examination anatomical support of the bladder was found to be not maintained.

Considering the above cases, it would seem wise to evaluate every case very carefully before any surgical procedure is anticipated. Local causes of incontinence must be ruled out by careful urologic survey. Urethral strictures, chronic trigonitis, polypi, posterior urethritis, and fibrosis of the bladder neck must be excluded as possible causes of incontinence. Rashbaum and Mandelbaum[15] have suggested a rational regimen of nonoperative treatment to differentiate true and false incontinence, including dilation of the urethra, local therapy to the trigone, and voluntary exercise of the vesical sphincter mechanism. Needless to say, neurogenic bladder must be excluded as a diagnostic possibility, by cystometric studies, and careful neurological examination.

### MUSCULAR EXERCISES

The various musculofascial sling operations, both retropubic and suprapubic, as described by Frankenheim, Michon, Aldridge, Studdiford, Millin-Read, (and others) have made many advocates, but again result in unavoidable failures. Their aim is praiseworthy, and somewhat physiologic, but accomplished with considerably more effort, and greater risk of failure than the Marshall-Marchetti procedure. Several of Marshall's original cases were patients in whom various sling operations had been unsuccessful.

Arnold Kegel,[16, 17] of Los Angeles, has contributed something which promises to be of great prophylactic value, and therapeutic usefulness, despite Novak's comments.[18] There is no doubt that purposeful, properly directed perineal and levator exercises, even without the use of Kegel's perineometer, will initiate or restore necessary musculofascial tone, and the use of the perineometer should simplify and enhance the results obtained. Kegel himself was the first to outline the limitations of muscle reeducation and resistive exercises in his own publication:

> "Conditions not suited to physiologic therapy are those in which gross separation of the fascias and muscles is evident, such as is found in true cystocele, or herniation of the bladder, true rectocele, with disruption of the perineal body, and in procidentia. Physiologic therapy in such conditions does not cure the herniation but does improve the tone and quality of the muscles which surround the hiatus."

We now consider it a neglect in postpartum, and postoperative care, for the patient not to be instructed in the practice of perineal exercise. We agree with Kegel that many women are totally unaware of the voluntary control of their unused flaccid perineal muscles, and that many symptoms and disorders, including stress incontinence are amenable to correction by this method. To the unintiated it is indeed a "worthwhile spectacle" (to quote Novak[18] in an unintended sense) to observe even a large cystocele drawn up into the pelvis by voluntary muscle contraction. While such may not always be curative, symptomatic cystoceles are often made asymptomatic, and a feeling of well-being is restored to patients for whom surgical correction may be inexpedient, or ill-advised.

It remains to say that the last chapter on the treatment of stress incontinence has not been written. Present day operations have not been thoroughly evaluated, modifications of existing procedures will be offered, and inevitably, new operations will be introduced. However, few would dare to disagree that the majority of cases today are still best treated by Kelly's original method (perhaps with slight modification), and that the 10 to 20 per cent failures may then be treated by one of the newer methods. At present it would seem that the Marshall-Marchetti procedure offers distinct advantage over the others in the correction of most of these failures. Time and accumulated experience will decide the proper role of retropubic vesicourethral suspension and fixation among the primary cases, but we venture to predict that its applications will grow, and in time it will become the pro-

cedure of election in cases requiring other abdominal surgery.

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## DERMOID CYST OF THE OVARY

HIRAM W. K. BATSON, M. D.†

NEW ORLEANS

It is the purpose of this paper to present briefly the results of a study of 108 cases of ovarian dermoids treated at Charity Hospital of Louisana, at New Orleans, during a seven-year period from January 1, 1945, through December 31, 1951.

### INCIDENCE

Dermoids are the most common ovarian neoplasm found in the premenstrual phase of life and are most frequently encountered during the period of sexual maturity. They constitute about 10 per cent of all ovarian tumors.

The youngest patient in this series was 3 years of age, the oldest 75. Approximately 70 per cent were between the ages of 15 to 40 years.

The location of tumors is shown in Table 1. There was a predilection for the right ovary. The cysts were bilateral in 12.9 per cent of the cases.

TABLE 1
LOCATION OF TUMORS

| | | |
|---|---|---|
| Right ovary | 54 | (50.0%) |
| Left ovary | 38 | (35.2%) |
| Bilateral | 14 | (12.9%) |
| Unrecorded | 2 | ( 1.9%) |

### PATHOLOGY

The dermoid cyst is apparently present at birth. It is of slow growth, and after attaining a certain size tends to become stationary. The largest cyst in this group measured 28 cms. in diameter, and the smallest about 8 mm. The average size was 10.16 cms.

Grossly, the tumor is very characteristic. It is usually globular with a smooth and glistening surface. After exposure to room temperature it becomes dull and wrinkled. The contents consist of a yellow, oily substance containing hair. At body temperature the contents are fluid, but change to a doughy, semisolid mass after removal. The wall varies in thickness and calciferous deposits are frequent. At one part there is a raised nipple-shaped protuberance commonly called the dermoid process, dermoid plug or mamilla from which all elements are derived. One or more teeth, usually of the incisor or molar variety, may be found along with bone. In one tumor of this group 3 teeth implanted in a rudimentary maxilla were observed.

Microscopically, the cyst is more complex. The majority contain structures from all three germ layers. A review of the microscopical sections from 75 tumors in this series revealed ectodermal derivatives in all cases, mesodermal elements in 92 per cent and entodermal structures in 62 per cent. Structures observed most frequently were stratified squamous epithelium, sebaceous glands, sweat glands, hair follicles, apocrine glands, salivary glands, nerve tissue, bone, hyaline cartilage, smooth muscle, fat, gastrointestinal tract epithelium, respiratory tract epithelium and thyroid.

A frequent finding which in itself is considered pathognomonic are sieve-like areas lined with giant cells separated by thin partitions of fibrous tissue.[6] This is thought

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

†From the Independent Obstetrical and Gynecological Service, Charity Hospital, New Orleans, Louisiana.

to represent a foreign body reaction resulting from the penetration of fatty material into the adjacent tissue.

The pathological complications met with are presented in Table 2. One cyst was acutely infected. Dense adhesions were present in 17 cases; however, no tumor was ruptured upon removal.

TABLE 2
PATHOLOGICAL COMPLICATIONS

| | |
|---|---|
| Acute infection | 1 |
| Chronic infection and adhesions | 17 |
| Torsion | 8 |
| Rupture | 1 |
| Intracystic hemorrhage | 1 |
| Squamous cell carcinoma | 1 |

In those examined microscopically an inflammatory reaction was observed in 51 percent. The pedicle was twisted in 8 cases. There was 1 case of massive hemorrhage within the cyst with a postoperative death and 1 case of spontaneous rupture with complete recovery. The contents of a dermoid are considered extremely irritating to the peritoneum, but this was not evident in the latter case. Malignant change in the form of a squamous cell carcinoma was present in 1 case. There were no parasitic cysts in this series.

The associated pelvic pathology is shown in Table 3. Fibroids were present in 28 cases, and were the only associated entity appearing in appreciable numbers. All of the associated ovarian tumors were present in the ovary opposite the dermoid. The significance of these observations is unknown. The frequent association of pseudomucinous cysts was not observed.

TABLE 3
ASSOCIATED PELVIC PATHOLOGY

| | |
|---|---|
| Uterine | |
| Fibroids | 28 |
| Adenomyosis | 3 |
| Cervical carcinoma | 1 |
| Adeno-acanthoma | 1 |
| Ovarian | |
| Brenner tumor | 1 |
| Fibroma | 1 |
| Granulosa cell tumor | 1 |

## CLINICAL CHARACTERISTICS

Dermoid cysts produce no characteristic symptoms. Blackwell *et al*[1] have previously established the facts that they do not cause irregular uterine bleeding or alter reproduction, and that there is no relationship between the size of the cyst and the symptoms.

Seven cases in this series were associated with intra-uterine pregnancy. Two of these presented large, fixed pelvic masses during early pregnancy, and the outcome of surgical intervention was satisfactory in both. Four cases associated with full term pregnancy, 2 of which had bilateral dermoids, were treated by cesarean section because of the possibility of obstructed vaginal delivery or rupture. In 1 case at repeat section the dermoid was an incidental finding upon examination of the adnexae.

Dermoid cyst was correctly diagnosed in 22 instances. Of these, 15 were confirmed by x-ray. Roentgenologic examination serves as the best method for the confirmation of an ovarian dermoid, and is usually based on the presence of teeth or other calcified shadows. In the absence of calcification, a central area of decreased density surrounded by a narrow zone of increased density is diagnostic[7] (Figure 1). The in-

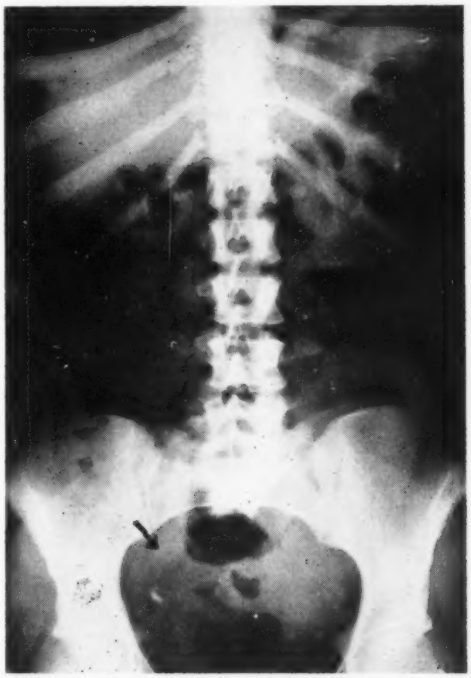

Fig. 1.—Roentgenogram of abdomen showing dermoid with tooth and rim of increased density (arrow) surrounding central area of decreased density.

terior presents a banded, mottled appearance and is due to the hair, and to the sebaceous material which is liquid at body temperature. The zone of increased density is due to the structure of the capsule. An appreciation of these signs will lead to a greater number of correct preoperative diagnoses.

The operative and postoperative complications correspond to those of any gynecologic series (Table 3).

TABLE 4
OPERATIVE AND POSTOPERATIVE COMPLICATIONS

| | |
|---|---|
| Operative | |
| Ureteral injury | 1 |
| Postoperative | |
| Peritonitis | 2 |
| Wound infection | 2 |
| Intestinal obstruction | 1 |
| Evisceration | 1 |
| Incision hernia | 1 |
| Death | |
| Lower nephron syndrome | 1 |
| Squamous cell carcinoma (metastases) | 1 |
| Undetermined | 1 |

For the entire series there were 3 deaths representing a mortality rate of 2.87 per cent.

### OPERATIVE TREATMENT

Oophorectomy is the procedure of choice. The majority of these tumors are associated with normal ovarian tissue; therefore, resection, if possible, is recommended in young patients, and especially in those in whom the cysts are bilateral. In the case of a unilateral dermoid, the opposite ovary may contain a tiny, deeply buried cyst which is not apparent upon superficial examination. Routine bisection is indicated in order to exclude subsequent trouble. Large dermoids in a position to obstruct vaginal delivery should be removed during pregnancy.

### SUMMARY AND CONCLUSIONS

The results of a study of 108 ovarian dermoids treated at Charity Hospital of Louisiana at New Orleans, have been presented.

Although dermoids are found at any age, they are most frequently encountered during the reproductive period of life. The average age for this series was 32.85 years.

There was a predilection for the right ovary. Twelve and nine tenths (12.9) per cent were bilateral.

The largest cyst was 28 cms. in diameter, the smallest 8 mm.

A review of the microscopic sections from 75 tumors revealed ectodermal derivatives in all, mesodermal structures in 92 per cent and entodermal elements in 62 per cent. A higher percentage of entodermal elements would have been obtained with a greater number of sections. It is agreed that the term "dermoid cyst" does not describe the lesion adequately.

The most frequent pathological complication was infection, and the next most frequent was torsion.

There are no characteristic symptoms.

The incidence of malignant change was 0.92 per cent.

A high percentage of these tumors may be diagnosed preoperatively by roentgenologic examination.

When indicated, resection of dermoids should be done to conserve ovarian function.

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# The Journal of the Louisiana State Medical Society

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## REPORT OF THE PRESIDENT'S COMMISSION ON THE HEALTH NEEDS OF THE NATION

The first volume of the report of the President's Commission on the Health Needs of the Nation, containing all recommendations, was made public on December 18. The remaining four volumes, devoted to details and statistics, are not yet ready for release.

The Commission was established by executive order of President Truman under the Chairmanship of Dr. Paul B. Magnuson. The membership of the Committee, reportedly nominated by the Chairman and appointed by the President, consisted of four other physicians, five educators, and five consumer representatives. Among the latter were Albert J. Hayes, head of the American Federation of Labor Machinist Union, Elizabeth S. Magee, secretary of the National Consumers League, and Walter P. Reuther, president of the CIO auto workers.

The report recommended momentous changes that would affect virtually every phase of medical activity. The cost would be supposedly about one billion dollars more annually, which the Commission says the country cannot afford not to spend. The changes would involve methods and type of practice and means of financing. Senator Lehman of New York is reported as planning legislation to put its provisions into operation. Probably the report will get the support of the Democratic party and eventually become a source of political controversy.

The report concerns everyone as the extent to which its provisions are adopted will influence the type of medical care and the position of the doctor, who may find himself called upon to give unlimited service for a limited compensation. It should be thoughtfully studied, and careful consideration given to the changes which would probably follow its operation.

The introduction to the report presents a carefully built up presentation of the theory of the welfare state as it applies to medicine. The Commission formulated the following principles which were to be used as a guide in approaching the health problem:

1. Access to the means for the attainment and preservation of health is a basic human right.

2. Effort of the individual himself is a vitally important factor in attaining and maintaining health.

3. The physician-patient relationship is so fundamental to health that everyone should have a personal physician.

4. The physician should have access to

proper facilities and equipment, affiliation on some basis with a hospital, and the help of trained personnel in order to fulfill his part in providing comprehensive health services.

5. Comprehensive health service includes the positive promotion of health, the prevention of disease, the rehabilitation of the disabled—all supported by constantly improving education of personnel and a continuous program of research.

6. Comprehensive health service is the concern of society and is best insured when all elements of society participate in providing it.

7. Responsibility for health is a joint one, with the individual citizen and local, State, federal governments each having major contributions to make toward its fuller realization.

8. The American people desire and deserve comprehensive health service of the highest quality and that in our dynamic expanding economy the means can be found to provide it.

9. The same high quality of health services should be available to all people equally.

10. A health program must take into account the progress and experience of the past, the realities of the present, and must be flexible enough to cope with future changes.

These objectives are to be secured principally by an increase in the activity of the federal government in all phases of health.

On medical service organization, the Commission expresses its findings as follows:

"The genius for organization, so characteristic of American life in general, is conspicuous in health services by its absence . . . the lack of organization that prevails in medical practice is the despair of the industrialist and the labor leader."

The type of organization recommended by the Commission is to be headed by the creation of a new department of cabinet rank of Health and Security. In connection with this department would be a permanent Federal Health Commission. The expanded activities of the government in the field of health would be expressed through this department. Departments of a similar function and nature would be developed in the several States, and still further, regionally and locally. Plans would be made toward utilization and expansion of facilities in the several areas. Federal money, which is regarded as a catalyst in the situation, would be extended to the States and local areas by means of grants-in-aid. The principal objectives of these grants-in-aid would be (a) to pay premiums for welfare cases, utilizing the prepayment plans already in existence, (b) to promote and extend prepayment coverage to the general public, subsidizing low income groups where necessary, and (c) to operate facilities for long range illness, available to all without a means test.

The Commission "accepts" the present prepayment plans as the most feasible vehicle for eventually bringing comprehensive medical protection to almost everyone. To further encourage prepayment plans to extend their coverage and liberalize their benefits, the ban would be lifted on payroll deductions from U. S. employees for health insurance, and OASI (Old Age and Survivors Insurance) funds would be used to pay premiums for OASI beneficiaries. Eventually, care of veterans and other federal patients would be taken over by the state and local medical care systems. The report does not, however, investigate the fundamental changes in prepayment plans that these additional changes would produce.

Additional functions of the Department of Health and Security would be aid to medical education, expansion of group practice, expansion of the hospital program, authoritative extension and further development in the field of public health, assistance to general practitioners in the matter of education and training and extension of hospital affiliations, development of hospitals to function increasingly as health and rehabilitation centers for the community.

Anticipated cost for such a program is one billion dollars in addition to the one

billion dollars which the federal government is already spending in the field of health.

The advantages of such a program are that it presents many possible solutions to some of the problems that have developed in the field of medical care. The plan and the plea for organization and teamwork take a position somewhat between that of compulsory supported medical care advocated by Truman and his followers and voluntary prepayment insurance advocated by organized medicine. The disadvantages will be discussed in these columns from time to time as the details unfold. At the present time, certain comments are in order.

In the Organization Section of this issue is a statement from Dr. Louis H. Bauer, president of the A.M.A., in regard to the Commission's recommendations, which reads:

"Funds collected through the OASI (Old Age and Survivors Insurance) mechanism be utilized to purchase personal health service benefits on a prepayment basis for beneficiaries of that insurance group, under a plan which meets Federal standards and which does not involve a means test."

This, in effect, he considers, recommends national compulsory health insurance for those beneficiaries who now number 4,500,000. It is obviously objectionable, and he further states:

"We find it extraordinary that this commission should, in its report, recommend a governmental system of paying for medical care which has been rejected repeatedly by the American people, by Congress, and by the medical profession."

It has been stated that the plan is designed primarily to help—by paying all or part of the premiums for health insurance, that 48 per cent of our families who receive $3000 or less annual income; also, persons with high income or no income at all would be helped in the same way if they could not meet the full cost of insurance premiums. This, presumably, is the same seventy million people who Oscar Ewing said could not pay for adequate medical care. This means that each self sustaining worker would have to pay for his own medical care and for someone else's, whether it came through taxes or not.

Apparently the plan is designed to shift the center of gravity of medical practice from the physician to the hospital or clinic. Such has been advocated in the past in high places and is being opposed with increasing vigor by organized medicine in recent years. The plan is impossible of operation without a marked increase in every form of medical facility. It envisages the following increases for a supposed population of 170,000,000 by 1960:

| | NOW | GOAL FOR 1960 |
|---|---|---|
| Federal aid per year | $1,000,000,000 | $2,000,000,000 |
| General hospital beds | 470,000 | 700,000 |
| Mental hospital beds | 425,000 | 755,000 |
| Physicians | 201,000 | 234,000 |
| Nurses | 365,000 | 450,000 |

The expense of operating a plan of the kind projected would be probably five or ten times the one billion dollars anticipated in the recommendations. For instance, it has been found that the expense of submitting, processing, investigating, collecting, and paying the claim for two house visits of a physician is approximately equal to the cost of those two visits under our present system.

The pressure of marginal groups will produce a tendency in legislation to extend the coverage which the government pays for sickness insurance. The annual growth of the percentage of individuals covered will make tax paid prepayment insurance almost universal, although not compulsory. The corollary to this will be a gigantic bureau, larger and more powerful than any now in existence, and vitally touching the life of every individual. The expense will increase to approach the situation reported from New Zealand, where at one time 40 per cent of federal revenue was absorbed by state medical care. The money will come from the citizens' taxes funneled through government agencies. The individual will have scant interest in how these facilities or services are conserved.

This plan, as a whole, proposes a radi-

cal departure from the present methods of medical practice. It could well bring about changes which are unforseen and undesirable. The plan should be studied in considerable detail by the profession. It may be that the profession will prefer a continuation of the evolutionary process now in existence.

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# ORGANIZATION SECTION

**The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.**

***An informed profession should be a wise one.***

## NEW JOURNAL

You will notice that in conformity with the action and direction of the House of Delegates, the name of our journal has been changed to "The Journal of the Louisiana State Medical Society," beginning with the January number. You will also note that the front cover has been changed to meet the trend of modern times and in keeping with other state journals, which more or less show some color and life. We feel that our new cover immediately brings to your attention the fact that it is the Louisiana State journal with Louisiana in bold type and appearing most prominently in clear view of the reader.

You will also note that the dimensions of the journal have been increased somewhat to conform more universally to the size of other state journals and for better advertising purposes.

We hope our selection of the new cover, which was approved by the Journal Committee, will also meet with your approval, and the journal will continue to prosper and meet the needs of our Society and have the approval of its readers.

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## REPORT OF PRESIDENT'S COMMISSION ON THE HEALTH NEEDS OF THE NATION

Reading of the following should convince you that our claims and contentions as expressed in our summary in the Organization Section of the October issue regarding the possible recommendations that would be made by Dr. Magnusson and his committee were absolutely true. In view of the fact that Mr. Stevenson, the Democratic candidate for president, expressed great confidence in his friend, Dr. Magnusson, and would await his report before expressing his final stand on Socialized Medicine, we should feel great satisfaction and gratification over the election of General Eisenhower.

(Released on December 18, 1952)

"CHICAGO—Dr. Louis H. Bauer, Hempstead, N. Y., President of the American Medical Association, said today that one of the major recommendations of the President's Commission on the Health Needs of the Nation provides that 'the federal government, through payroll deductions, would pay directly for the medical care of a large segment of the population.'

"'This,' he added, 'is national compulsory health insurance.'

"The American Medical Association is withholding comment on the full report of the Commission, pending careful study of the document by a four-man committee appointed by the Board of Trustees. This committee, which has not yet had an opportunity to study all of the Commission's material, is composed of Drs. Bauer, Gunnar Gunderson, LaCrosse, Wis.; Edwin S. Hamilton, Kankakee, Ill.; and Walter B. Martin, Norfolk, Virginia. It will be several weeks before the A. M. A. committee makes its analytical report.

"Dr. Bauer said that since this one recommendation is 'so obviously objectionable, we wish to call attention to it immediately.'

"He referred to Point 4 of the recommendations (appearing on page 10 of the News Release and page 148B of Volume 1 of the Commission Report) which reads:

"'Funds collected through the OASI (Old Age ond Survivors Insurance) mechanism be utilized to purchase personal health service benefits on a prepayment basis for beneficiaries of that insurance group, under a plan

which meets Federal standards and which does not involve a means test.' (A means test is a test to determine ability to pay.)

"Continuing Dr. Bauer said:

"'We wonder if all the Commission members who signed the Report understood the full implications of this recommendation.

"'Although the Commission does not use the term, this proposal, in effect, recommends national compulsory health insurance.

"'We find it extraordinary that this Commission should, in its report, recommend a governmental system of paying for medical care which has been rejected repeatedly by the American people, by Congress and by the medical profession.

"'In this single recommendation, the Commission proposes that funds collected through the Social Security System be used to purchase medical care for beneficiaries (now 4½ million) covered by that system. Under this plan, the federal government, through payroll deductions, would pay directly for the medical care of an ever-increasing segment of our population, and our health services would inevitably be controlled by Big Government.

"In our cursory study of the Report, we have observed numerous false and contradictory conclusions and questionable recommendations which the American Medical Association will comment upon in detail at a later date.'"

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## LOUISIANA HEALTH COUNCIL MEETING

The Louisiana State Medical Society was represented by two members of the Rural and Urban Health Committee, Doctors M. C. Wiginton and J. P. Sanders, at the Louisiana Health Council meeting held in Shreveport in November. The program was the longest and most complete that has been held to date and this is the first time the Louisiana Health Council has attempted to hold a three day meeting.

Thursday afternoon and night were reserved for business sessions. Dr. J. P. Sanders gave a paper on the "Geriatric Problem," stressing the fact that old people should be kept on the job for longer periods of time.

The panel Friday morning was dedicated to "Youth Problems" and was headed by Mr. Higgins, of Baton Rouge, Dr. Knipmeyer, Parish Health Officer, Natchitoches, Judge Chris Barnett, Juvenile Judge in Shreveport and several other members. Important on this panel were two Byrd High School students of Shreveport, and four college students from Northwestern at Natchitoches.

In the afternoon, a discussion on the recruitment of nurses, both on the professional and undergraduate level, was covered. Many important points were brought out; chiefly that there are still not enough nurses and that all available agencies must be brought into the picture in order to get enough nurses to serve the needs of the hospitals, the doctors and the patients of Louisiana.

A banquet was held Friday night after which a panel discussion on the "Future of the Health Services of Louisiana" was presented. It was again stressed that there has not been enough money appropriated to carry on the health services over the State properly. Funds for these services should be increased even at the expense of some other services.

The Saturday morning session was composed of a summary on Pediatrics, which included safety problems, polio, and proper infant feeding. This was discussed by Dr. Nelson K. Ordway, of New Orleans, Dr. George Wolfe, of Shreveport, and Dr. Smith of Lake Charles.

At the conclusion of the meeting election of officers took place and all officers were returned to office with the exception of Dr. Homer L. Hitt, the retiring first vice-president. He was succeeded by Dr. W. L. Treuting, professor of Public Health, Tulane University. Mrs. Sam Levy was re-elected president, Mrs. M. C. Wiginton, second vice-president, Miss Marian Souza, secretary, and Mr. Ira McGehee, treasurer. The Convention decided to hold its meeting at the same time next year in Alexandria.

Your writer should call attention to the fact that only two members of the Rural and Urban Health Committee of the State Society were present at this meeting: the same two members who attended last years' meeting. Four of the other members wrote that they were unable to attend and the other two did not answer the correspondence. The president and the secretary of

the State Medical Society were also unable to attend. It is desired to call your attention to the fact that the State Medical Society was instrumental in helping to organize the Health Council five years ago. Your writer was its first vice-president and its second president. There are some 75 agencies which belong to the Health Council, and have members who are taking an active part. I believe the members of the State Medical Society, its officers, and its Rural and Urban Health Committee should take a more active part.

Any socialistic tendencies which turn up in this meeting should be combatted or met by those who are strongly against socialism. In the writer's opinion, unless this is done, whatever trends the Council takes, can not be off-set by the two members who are usually present.

J. P. Sanders, M. D., Chairman,
Committee on Rural and Urban Health

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## REPORT OF DELEGATES INTERIM MEETING—AMERICAN MEDICAL ASSOCIATION

Denver, Colo.—Dec. 2-5, 1952

The House of Delegates convened promptly at 10 o'clock on Tuesday morning, December 2, 1952, with Speaker of the House, James R. Reuling, presiding.

The two delegates from Louisiana were among the 177 answering the initial roll call. Out of a total of 191, there were 185 delegates seated.

Dr. J. Q. Graves was a member of the Blood Bank Committee and also a member of the Council on Medical Service.

Dr. Val H. Fuchs was appointed to the Committee on Hygiene and Public Health.

Dr. John Maston Travis of Jacksonville, Texas, was the recipient of the General Practitioner Award.

The delegates were instructed to notify their society that when they wish to present resolutions before the House of Delegates, the Central Office will supply the forms, eight in number, on which the resolutions can be written.

Speaker Reuling suggested that applicants for membership in parish medical societies should be required to take an examination on Medical Ethics. If he errs once against these ethics he should be reprimanded, but if he errs twice he should be expelled.

For the first time in 15 years Past-President E. L. Henderson, due to illness, was forced to miss an annual meeting, so a telegram was sent to him regretting his absence and hoping for a speedy recovery.

Chapters of the Student A. M. A. are present in 61 medical schools and from 8 to 10 more are expected by June 1953. Two representatives from this national group were extended non-voting privileges in the House.

Motion was made and passed that we recommend that the United States withdraw from the International Labor Organization and that a copy of this resolution be sent to all our Senators and Congressmen.

The Board of Trustees authorized contribution of $500,000.00 to the AMA Educational Fund.

Norman R. Booker, M. D., Vice-Chairman, National Rehabilitation Commission, the American Legion, addressed the House as the representative of Mr. Lewis Gough, National Commander. In his remarks he stated: "There seems to be agreement between the Legion and the medical profession and the hospital people that there is justification for certain types of cases which are non-service connected being treated by the Veterans Administration. These are the types of illnesses which make the patient a public charge under most circumstances. Specifically, I refer to the tubercular, the neuropsychiatric cases and the cases of chronic illness where over 90 days' hospitalization is required. The position of the American Legion is that if these categories of non-service-connected cases are accepted as under the present law, that we, the American Legion, stand willing and ready to join with the American Medical Association, American Hospital Association, American Dental Association and all others to prevent the non-service cases which we might term "chiselers" from ever receiving treatment by the Veterans Administration. The presence of such an individual who can afford to pay for his private medical care in a Veterans Administration bed means to us that he is depriving a worthy and qualified Veteran from receiving the care the Congress and the people of this country intend for him to have.

"Believing as we do the above principles, we think that the present law, P.L. 312, should stand without the dangerous procedure of tampering with it in the Congress. By the same token, we believe that the enforcement of the present law by administrative means should be reconsidered with every American demanding its fair enforcement. The Legion has already helped accomplish some administrative changes."

The Secretary reported that: "The Membership records, to September 5, 1952 show that approximately 110,600 members have paid 1952 American Medical Association dues; about 20,000 are listed as active members but owe payment of dues for 1952 or a previous year; 2,923 are Associate Members; 6,873 are Active Members exempted from the payment of American Medical Association dues for one of the following reasons: Financial hardship;

lems. In the interest of the public and the armed postgraduate training within five years of graduation from medical school; retirement from active practice; attainment of age 70 before January 1, 1952, and active duty with the armed forces. In addition there are approximately 270 Affiliate Members, 140 Honorary Members, and 8,900 Service Members. The last-named group includes full time, career officers in the United States Army, United States Navy, United States Air Force, Veterans Administration, Public Health Service, and Indian Service.

"During 1952, 6,380 payments were received to cover 1951 dues, and 1,334 payments to cover 1950 dues. In almost every state, there are still a number of physicians being carried on the roster of the American Medical Association as active members but from whom a payment of 1952 dues, or a previous year's dues, has not been received. Some of these physicians were exempted from the payment of 1951 dues and are now being reported by the constituent associations as exempt for the current year; others are no longer active members; the remainder are being notified that they are delinquent in the payment of dues and that they will be dropped from the membership roster."

The Board of Trustees reported: FIRST WORLD CONFERENCE ON MEDICAL EDUCATION. — Under the sponsorship of the World Medical Association, the first World Conference on Medical Education will be held in London, England, Aug. 14-29, 1953.

"WASHINGTON PROPERTY.—A close watch is being kept on property available in Washington, D. C., with the idea of securing a suitable site for a permanent home for the Washington Office. The Board of Trustees will make a report to the House of Delegates as soon as property can be found which it would be advantageous for the Association to purchase.

"Perhaps a few figures concerning the amount of work necessary in the compilation of THE JOURNAL may be of interest. For example, the number of man hours expended in the printing shop alone each year is 251,000. For one year there are required 4,370 tons of paper. Paper alone costs $761,000; ink $44,000, and wages in the printing department, exclusive of the editorial department, total $596,000.

"NEW DIRECTOR.—After having served as Deputy Director for three and one-half years, Dr. Frank E. Wilson became Director of the Washington Office, September 1, 1952, succeeding Dr. Joseph S. Lawrence, who had held the position eight years before retiring. A native of Tennessee, Dr. Wilson was graduated from the University of Tennessee College of Medicine in 1933 and received his Master of Public Health degree in 1947 from the University of North Carolina. He practiced medicine in Mooresville, N. C., from 1935 to 1938. A diplomate of the American Board of Preventive Medicine and Public Health, Dr. Wilson served as a local health officer in North Carolina from 1939 to 1941. As a reserve officer he was called to active duty in the Army and served from 1941 to 1946. He is now a colonel in the Medical Corps Reserve and, besides commanding a Hospital Center, is a member of the Editorial Advisory Board of the MILITARY SURGEON. From 1946 to 1949 Dr. Wilson was National Medical Director of the American Red Cross. In addition to serving as Director of the Washington Office, Dr. Wilson is currently secretary of the American Medical Association Committee on Blood Banks."

The House went on record as opposing scientific experiments on felons in prison, especially murderers, rapists, and others committing heinous crimes, in the hope that their sentences may be commuted or shortened.

Local hospitals can determine what are unnecessary compulsory meetings. Some hospitals have been suggesting that doctors give a percentage of their fees on hospital patients to the hospitals, but this is forbidden as it constitutes fee splitting.

In some sections of the country doctors practicing at a distance from clinics have been referring patients to these clinics and getting rebates. This practice is condemned in no uncertain terms. In many cases, these doctors live miles away from the clinic but act as referring agents.

The Board of Trustees was asked to study the Malpractice Liability Insurance situation and report at the next meeting.

"REPORT OF THE COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE."—From October 1, 1951 to September 30, 1952, the period covered by this report, the activities of the Council on National Emergency Medical Service, with respect to medical civil defense planning and the procurement and utilization of physicians by the armed services, have been both extensive and urgent. The continuation of the Korean conflict, plus the ever-present possibility of similar episodes in the other parts of the world, has necessitated the perpetuation of the quasi-wartime status which has existed in the United States since June, 1950. The resulting necessity for defensive planning by responsible government agencies in a local peacetime atmosphere has received an apathetic reception. The Council, however, has labored to cooperate fully with those officially responsible and at the same time to safeguard the interests of the public and the medical profession by assisting in the formulation of equitable laws and regulations and the education of physicians concerning their military and civil defense obligations.

"Military and Selective Service Activities: The existence of the 'Doctor Draft Law' is the principal means of procuring physicians for the armed services and the inequities which are implicit in its administration have been the source of some of the Council's most serious and compelling prob-

services, in September, 1950, the Council supported legislation authorizing the drafting of physicians as the most equitable means of meeting the increased military need for medical officers and has continued to work closely with the three surgeons general, the Selective Service System and its National Advisory Committee, and the Department of Defense in its administration.

"On behalf of the profession, the Council has attempted since that time (1) to facilitate and increase the efficiency of the administration of the 'Doctor Draft Law'; (2) to effect a timely and orderly system of recall and rotation of medical reservists; (3) to prevent a repetition of the medical overstaffing which occurred in certain areas during World War II; and (4) to curtail the utilization of medical personnel on nonprofessional assignments. It is the sincere belief of the Council that it has been instrumental in attaining a measure of success in its efforts to achieve these four goals.

"'Adjustment Pay' for Physicians in the Armed Forces: The necessity for continuing the additional $100 per month for physicians and dentists in the armed services, which was due to expire in July, 1952, was reemphasized by the Council following its spring meeting. The testimony presented by the Association in May to the Senate Armed Services Committee contributed to the effective passage of legislation, Public Law 410, 82d Congress, approved June 25, 1952, which extended this benefit until July 1, 1953. At that time the entire matter will again have to be explored by the Congress."

The Council on Medical Education and Hospitals reported that "While there were over 15,000 residents serving in hospitals in this country last year, there were over 20,000 positions available, with the result that slightly less than *77% of residencies* were filled. Considering first year appointments only, there were approximately 6,400 residents on duty, representing 68% of positions available.

"From Oct. 1, 1951 to Sept. 30, 1952 the number of registered hospitals increased from 6,549 to 6,717. In this period 388 new institutions were registered, whereas 220 were closed or transferred to the unclassified file. The annual admissions totaled 18,237,118, the hospital births 2,999,371, and the average daily census 1,293,643. Thus in the 12 months' period covered by the Council's report the hospitals registered by the American Medical Association gave a total of 472,183,345 days of patient care. The general hospitals, reporting 17,065,821 admissions and 2,923,509 births, offered the greatest volume of service, yet the psychiatric institutions, with only 307,010 admissions, had an average daily census of 697,521, which is greater than the combined patient load in all other registered hospitals.

"For several years the Council on Medical Education and Hospitals has collected information on the development of general practice sections in hospitals. These studies are being continued in cooperation with the American Academy of General Practice and will serve to indicate the facilities and privileges available to qualified general practitioners. A report on this subject was published in the Hospital Number of THE JOURNAL, May 10, 1952."

The Report of the Special Committee on Federal Medical Services was a voluminous one, consisting of 152 pages. There was very heated discussion on the recommendations, which were:

"*Part One*—Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories:

"(a) Veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated; and

"(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service-connected origin, who are unable to defray the expenses of necessary hospitalization.

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community where it rightfully belongs.

"The recommendation of the Committee with respect to the treatment of veterans with tuberculosis and neurophychiatric disorders of non-service origin in federal hospitals is believed necessary at this time because of the inadequacy of local facilities designed to provide treatment for all such cases. It is the feeling of the Committee, however, that the entire question of whether the care of these patients is a local or a federal responsibility must be reanalyzed by the Congress. The rapidly expanding veteran population and the need for facilities for the remainder of our citizens afflicted with these diseases suggests that community facilities must be developed under state or local administration for the benefit of all. Preferential treatment for veterans with these non-service-connected disabilities cannot be continued indefinitely, in view of its detrimental effect on the health and the economy of the entire nation.

"*Part Two*—Your Committee recommends that the Congress study and determine whether the provision of medical care and hospitalization benefits for dependents of service personnel is a proper and desirable emolument of military service. In the opinion of the Committee such a study should also determine the percentage of time spent by medical and allied health personnel in uniform in

the treatment of dependents of service personnel.

"It is recommended that the establishment of a definitive policy by the American Medical Association on the subject of dependent medical care be deferred until such time as these studies are completed.

"Pending a report on such a study the American Medical Association will formulate its policy when and if proposals are presented affecting the scope and extent of medical care of dependents of service personnel.

"*Part Three*—Your Committee heartily endorses the purpose of the program of transferring seriously disabled service personnel from service hospitals to Veterans Administration installations. It is the recommendation of the Committee that it be continued and that every effort be made to accomplish maximum implementation.

"*General Recommendations*—Your Committee would like to restate and reemphasize certain of the recommendations which were presented by the American Medical Association on March 3, 1952 before the Senate Committee on Expenditures in the Executive Departments relative to S. 1140, 82d Congress. These recommendations suggest that the most effective way to institute governmental economy in the use of funds and medical manpower is:

"(a) To obtain a clear congressional definition of the extent of the government's responsibility for furnishing medical care with particular reference to the treatment of veterans with non-service-connected disabilities and the dependents of service personnel; and

"(b) To establish a federal board to allocate the number of beds required by the several federal hospital services; to insure planning in the field of federal hospital construction and to determine the need for and location of proposed new federal hospitals in the United States."

A motion on these recommendations was made and passed that the A. M. A., A. D. A., A. H. A. and V. A. sit down and see if they cannot come to some agreement before any effort is made to change the law in Congress.

A very extensive report was made by the Committee on Blood Banks and our delegate, Dr. Graves, was thanked and the statement made appreciating his services and commending the excellent work and amount of time he gave to this committee. His term expired after serving five years on this committee.

"*Procurement of Blood for Defense and Civil Defense.*—As of September 28, 1952, since December 1, 1950, 3,407,193 pints of blood had been forwarded for defense and civil defense purposes. Of this amount 2,787,178 pints had been collected by Red Cross regional and defense centers and 620,015 pints by contracting independent blood banks.

"During the year 1952, nearly all of the immediate primary allocation of plasma to the Defense Department will have been reached and the allocations to civil defense will have started; civil defense will require 1,300,000 units of plasma in the current fiscal year. To get sufficient donors for this latter objective, all of the publicity media of the country have again joined up through the efforts of the Advertising Council, Inc. The Subcommittee on Blood, Office of Defense Mobilization, is guiding this and about September 1, issued a 'Publicity Manual' giving advice to be used in the donor campaign. Barring enemy attack or extension of our war activities it is estimated that the high level of blood procurement must be maintained throughout 1954 and possibly 1955. If fortuitous circumstances develop in that time, the end of high level blood procurement cannot now be forecast. The 1952 summer decline in donor procurement was not quite as great as anticipated.

"On November 15, 1952, blood for *defense* was being procured through 46 Red Cross centers, 15 Red Cross defense centers and 23 cooperative independent blood banks under contract, with contracts for six more in process (total 29)."

If there is mutual agreement between a County Medical Society and the Red Cross that a center should be discontinued, then some equitable understanding should be arrived at concerning the vested interest of the Red Cross.

Dr. G. D. Cummings, Chairman of the Subcommittee on Blood, Office of Defense Mobilization, made the following statement: "The Subcommittee on Blood, Office of Defense Mobilization, was established to facilitate meeting the mobilization needs of the Federal Government for blood and blood products without duplication or conflict of effort among the various Federal agencies involved, and without detriment or interference with the operation of civilian blood banks.

"*Supplementary Report of Committee on Blood Banks.*—As noted last June, further experiments to determine whether gamma globulin had protective value against the paralytic phase of poliomyelitis were carried out this past summer by Dr. William McD. Hammon and associates under grants from the National Foundation for Infantile Paralysis. Three preliminary reports of these studies were published in J. A. M. A. 150: No. 8; 739-760 (Oct. 25, 1952). It was demonstrated that the gamma globulin used, in the dosages employed, reduced significantly the number of cases of paralysis demonstrable in the treated group as compared with the untreated group in the three epidemic areas studied. It was shown that the most significant findings were confined to cases occurring from one to five weeks after the protective injection and that, hence, the relative passive immunity conferred was not of long duration.

"Numerous conferences through the summer

brought out the speculation that although this type of immunity is not the final answer to poliomyelitis, a very large public demand for its use might be anticipated in 1953 as the polio season got under way. The fact that sufficient gamma globulin to meet this demand cannot possibly be met in 1953 poses a problem of major proportions.

"A glance at the figures might be enlightening. It is estimated that the gamma globulin needed for the average dose used in the experiments (7 cc. of 16% solution), were it to be given annually only once to the 40,000,000 children under fifteen years of age, would require about 40,000,000 bleedings of whole blood per annum. Total bleedings for all purposes, defense and civilian, in 1953 will probably not exceed 6,500,000. No estimate of the potential need in the age group fifteen years and over is taken into account in the above figures. Actually, no such astronomical need can develop, but practical thinking will still suggest a very heavy demand even if its use be confined to the most serious epidemics of 1953.

"Fractionation capacity for gamma globulin in all plants is now being about one-third utilized. If totally used, probably less than 1,500,000 such doses could be produced.

"In view of the fact that the forseeable supply of gamma globulin in 1953 cannot possibly meet more than a fraction of the potential demand for that product, the American Medical Association urges understanding and willing cooperation with the allocating mechanism upon the part of physicians, health officers, pharmaceutical companies and pharmacists, to the end that the over-all interest and needs of the American public may not be undermined by the sapping away at local levels of this critical human resource."

On Tuesday night a nationwide hook-up on TV showed a Caesarian Section and on Thursday night a program was televised on heart, cancer and mental diseases under the title of "March of Medicine."

With one and one-half days left for registration, the total on Wednesday evening was 2,292 physicians and 2,910 guests.

Your President, Dr. William E. Barker, Jr., your Secretary, Dr. C. Grenes Cole, and the Chairman of the Council on Medical Service and Public Relations, Dr. W. Robyn Hardy, attended most of the sessions of the House. All were present at the Public Relations meeting the day preceding the opening of the Convention. A very excellent program was presented and some valuable information obtained.

Respectfully submitted
J. Q. GRAVES, M. D., Delegate
VAL H. FUCHS, M. D., Delegate

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## CALENDAR

### PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

| Society | Date | Place |
|---|---|---|
| East Baton Rouge | Second Wednesday of every month | Baton Rouge |
| Morehouse | Third Thursday of every month | Bastrop |
| Natchitoches | Second Tuesday of every month | |
| Orleans | Second Monday of every month | New Orleans |
| Ouachita | First Thursday of every month | Monroe |
| Rapides | First Monday of every month | Alexandria |
| Sabine | First Wednesday of every month | |
| Second District | Third Thursday of every month | |
| Shreveport | First Tuesday of every month | Shreveport |
| Vernon | First Thursday of every month | |

### LONGEVITY

In a Thanksgiving message, Dr. Louis H. Bauer, president of the American Medical Association, said that "the length of human life in the United States has doubled—for Americans as a whole since our nation was founded and for the industrial population within just the past 75 years."

### DOCTORS' INCOMES AT ALL-TIME HIGH

The average physician in private practice had a 1951 net income, before taxes, of $15,262—a rise of 35 per cent in four years.

This is revealed in the December issue of *Medical Economics*, national business magazine for doctors. The magazine is publishing the results of a nationwide survey of medical practice, based on a questionnaire sent to each of its 134,000 M.D.-readers.

According to the survey, the average U. S. doctor is in a better financial position now than at any time in the past. But physicians' incomes are found to vary widely when regional and other breakdowns are made.

### NEWS ITEM

At a recent meeting of the Central Association of Obstetrics and Gynecology in Memphis, the following doctors were elected as members: Dr. Dan Beacham, New Orleans, Drs. James Farris and Cary Daugherty, Baton Rouge.

### ONE-YEAR RESIDENCIES IN EXPERIMENTAL MEDICINE

The Medical Division of the Oak Ridge Institute of Nuclear Studies is inviting applications for one-year residencies in experimental medicine. Two

appointments will be made annually beginning in 1953.

The Division operates under contract with the U. S. Atomic Energy Commission a 30-bed research hospital and extensive laboratories for correlation of basic scientific studies with clinical investigation. An active research program of experimental cancer therapy with radioisotopes is in progress under the direction of a full-time staff and consultants from participating medical schools. Research in progress offers opportunities for metabolic studies with isotopes and for investigations in the field of hematology.

The residencies are approved for one year of basic credit in Internal Medicine by the American Medical Association and the American Board of Internal Medicine. Stipends are $2,000 plus $4 a day subsistence in lieu of maintenance.

Additional information may be obtained from Marshall Brucer, M. D., Chairman, Medical Division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee.

## PAN-PACIFIC SURGICAL ASSOCIATION MEETS IN NOVEMBER, 1954

The executive office of the Pan-Pacific Surgical Association announces that the Sixth Pan-Pacific Surgical Congress will be held in Honolulu in November 1954.

Included in the scientific program will be sessions in all divisions of surgery and related fields, with papers presented by topflight surgeons from the Pacific Area countries.

For further information concerning the Sixth Congress or membership in the Association, doctors may write to the Pan-Pacific Surgical Association, Suite 7, Young Building, Honolulu, Hawaii.

## AWARD FOR OUTSTANDING RESEARCH IN THE FIELD OF INFERTILITY

The American Society for the Study of Sterility announces the opening of the 1953 contest for the most outstanding contribution to the subject of infertility and sterility. The winner will receive a cash award of one thousand dollars, and the essay will appear on the program of the 1953 meeting of the Society. Essays submitted in this competition must be received not later than March 1, 1953. For full particulars concerning requirements of this competition, address The American Society for the Study of Sterility, c/o Dr. Herbert H. Thomas, 920 South 19th Street, Birmingham, Alabama.

The author should append on a separate sheet of paper a short biographical sketch of himself and include a photograph to be used in the necessary publicity should he be the winner of the award.

## FAMILY DOCTORS SCORE ECONOMIC GAINS

The financial edge that medical specialists have long held over family doctors is diminishing fast. Less than ten years ago, the income of the average specialist was about twice that of the average general practitioner; nowadays, it's only aout 20 per cent higher.

This is revealed in the November issue of *Medical Economics*, national business magazine for physicians. The magazine is publishing the results of a nationwide survey of medical practice, based on a questionnaire sent to each of its 134,000 M.D.-readers.

## INTERNATIONAL COLLEGE OF SURGEONS TO HOLD QUALIFYING EXAMINATIONS

Qualifying examinations for Fellowship in the United States Section of the International College of Surgeons will be held on the following dates in 1953: February 2 and 3, May 4 and 5, August 10 and 11, and November 2 and 3. The examinations will be given at the Cook County Graduate School of Medicine, and the Cook County Hospital. Applicants are requested to address communications as follows:

Harry A. Oberhelman, M. D., Secretary
Qualification and Examination Council
1516 Lake Shore Drive
Chicago 10, Illinois

## YELLOW FEVER VACCINE AVAILABLE IN CLINICS

Yellow fever vaccine, heretofore produced exclusively by the Public Health Service of the Federal Security Agency, will be manufactured in the future by a nationally known pharmaceutical firm, it was announced recently by Surgeon General Leonard A. Scheele of the Public Health Service.

The announcement was made jointly with the National Drug Company of Philadelphia and the Armed Services Medical Procurement Agency.

Withdrawal of the Government from yellow fever vaccine production is in accord with Public Health Service policy of turning over to the pharmaceutical industry the manufacture of biological products once large-scale production becomes feasible. This step was taken following several conferences with many of the major pharmaceutical houses in the United States.

Public Health Service and military officials praised the National Drug Company for its contribution to the national interest in taking over production of yellow fever vaccine, most of which is supplied to the armed services to meet their needs.

The Surgeon General pointed out that manufacture of the vaccine by the National Drug Company does not alter the regulations governing distribution. All eligible consumers now receiving the vaccine may continue to do so. Clinics issuing yellow fever vaccine certificates are designated by the Public Health Service in accord with the international sanitary regulations of the World Health Organization. Vaccination certificates must be obtained by travelers from a designated clinic in order to be valid for international travel.

## WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

### ORLEANS PARISH

December 31, 1952

The following is a complete list of the officers and committee chairmen of the Women's Auxiliary to the Orleans Parish Medical Society for the year 1953:

President, Mrs. Edwin R. Guidry.

President-elect, Mrs. Lloyd Kuhn.

Vice-Presidents: 1st, Mrs. Robert Dody Kelleher; 2nd, Mrs. Daniel J. Murphy; 3rd, Mrs. Robert Rougelot; 4th, Mrs. Hyder F. Brewster.

Recording Secretary, Mrs. Nathan R. Polmer.

Corresponding Secretary, Mrs. Edward W. Nelson.

Publicity, Mrs. George M. Haik.

Treasurer, Mrs. John W. Atkinson.

Historian, Mrs. John J. Archinard.

Parliamentarian, Mrs. Albert F. Habeeb.

State President, Mrs. Edwin A. Socola.

### RAPIDES PARISH

Members of the Woman's Auxiliary to the Rapides Parish Medical Society honored the student nurses at the Baptist Hospital and members of Future Nurses Clubs at Bolton and Providence High Schools at a lovely fall tea in the home of Mrs. O. B. Owens.

Guest speaker for the day was Dr. Eustis Wilson, who had as his topic, "As the Doctor and Patient See the Nurse."

The auxiliary is organizing future nurses clubs throughout the state, as a phase of nurse recruitment, which is one of its major projects this year. The purpose of the clubs is to promote better understanding of the nursing profession. A club has already been organized at Bolton High School and plans are underway to formulate similar groups at Providence Central High and Pineville High School.

### STATE PRESIDENT HONORED AT TEA

The Woman's Auxiliary to the Shreveport Medical Society entertained with a Christmas tea December 10, honoring Mrs. R. E. Strain, state president, in the home of Mrs. Peachy R. Gilmer. Members and guests were received by Mrs. Gilmer, Mrs. Strain and Mrs. J. E. Knighton, Jr., second vice-president of the Shreveport Auxiliary, and invited into the reception rooms where the Yuletide motif was employed.

At one end of the mantel in the living room was a white madonna holding a striking arrangement of gold magnolia leaves and small white angels touched with gold, and at the opposite end white tapers burned in brass candlesticks in front of which stood two gold angels. Throughout the room white sasanquas and gold and silver magnolia leaves were used.

On the table in the den was a large brass cornucopia spilling gold and green leaves and gold baubles. Over the mantel hung a wreath of golden wheat and fruit.

In the dining room, the credenza held a large Victorian dome filled with orchid and pink Christmas baubles. On either side were bowls of silver leaves. Pink shells and pink sasanquas placed at vantage points complemented the decor of the room. The serving table was centered with a handsome arrangement of pink gladioli and pink tapers touched with silver in a branched silver candelabrum which stood on an antique silver rimmed reflector. Coffee was served from a silver service placed at one end of the table. Mrs. C. E. Boyd and Mrs. Arthur A. Herold alternated in serving.

A large number of guests called during the afternoon.

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# BOOK REVIEWS

*Cellular Changes with Age;* by Warren Andrew. Springfield, Charles C. Thomas, 1952. pp. 75. illus. Price $2.50.

In this small monograph, one of a series in the American Lectures in Anatomy, the author wisely treats of a frequently neglected point of view in gerontology, namely the effect of aging of the organism as a whole on the cells of different systems. Aging is not considered to be the result of degenerative changes in any one type of cell or group of cells but as a total change in the organism which has reflective effects on specific cells or systems. Findings of gerontological interest in the field of plant life and in the lower animal organisms are briefly summarized in the first chapters and a detailed consideration of cellular changes in the cells of the higher mammals and man is made in one long chapter. The cell groups are classified and considered following Cowdry's earlier classification which takes into account degree of differentiation and regenerative abilities. It is pointed out that the relatively stable nervous tissue shows definite signs of aging whereas muscle tissue does not show very much indication of aging; liver cells and endocrine cells usually show consistent changes with aging as do bone and cartilage and epidermis; whereas the kidney shows very few signs of aging. There is no speculation by the author as to the mechanisms involved in cellular signs of aging except in a short concluding chapter in which he considers the general problems of cellular metabolism and formation of aging "substances" as recently postulated by Lansing in certain primitive animal organisms.

L. M. N. BACH, PH.D.